



Fibaro

## Roller Shutter 3

SKU: FIBEFGR-223



### Quickstart

This is a **secure Roller Shutter** for **Europe**. To run this device please connect it to your mains power supply. To add this device to your network execute the following action:

Quickly, triple click the S1 switch.

### Important safety information

Please read this manual carefully. Failure to follow the recommendations in this manual may be dangerous or may violate the law. The manufacturer, importer, distributor and seller shall not be liable for any loss or damage resulting from failure to comply with the instructions in this manual or any other material. Use this equipment only for its intended purpose. Follow the disposal instructions. Do not dispose of electronic equipment or batteries in a fire or near open heat sources.

### What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section.

Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.

If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to [www.z-wave.info](http://www.z-wave.info).



### Product Description

**FIBARO Roller Shutter 3** is a device designed to control roller blinds, awnings, venetian blinds, gates and other single phase, AC powered devices.

**Roller Shutter 3** allows precise positioning of roller blinds or venetian blind lamellas. The device is equipped with power and energy monitoring. It allows to control connected devices either via the Z-Wave network or via a switch connected directly to it.

### Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state**. Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

#### Reset to factory default

This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

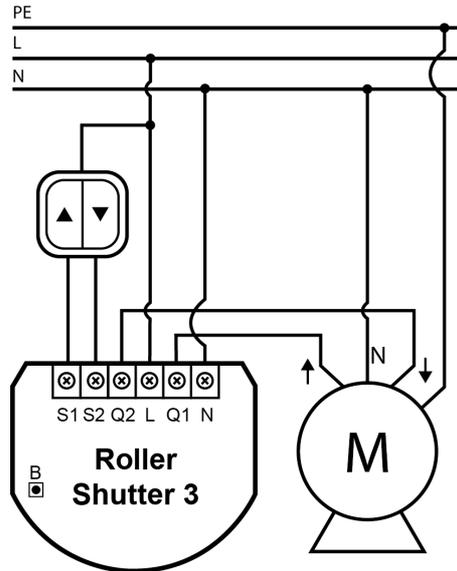
1. Press and hold the B-button to enter the menu.
2. Wait for the LED indicator to glow yellow.
3. Quickly release and click the B-button again.
4. After few seconds the device will be restarted, which is signalled with the red LED indicator color.

#### Safety Warning for Mains Powered Devices

**ATTENTION:** only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

### Installation

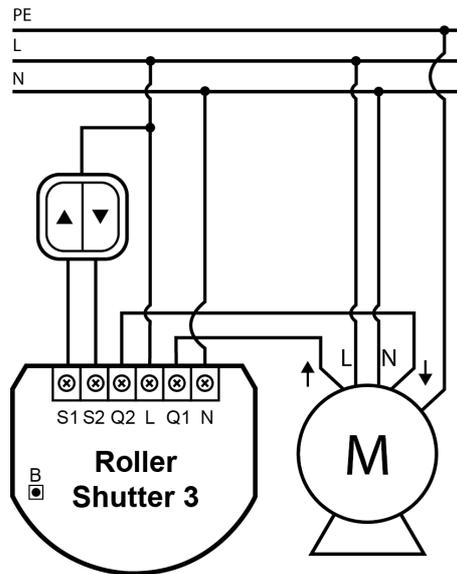
**Installation with standard blinds:**



#### Notes for the diagrams:

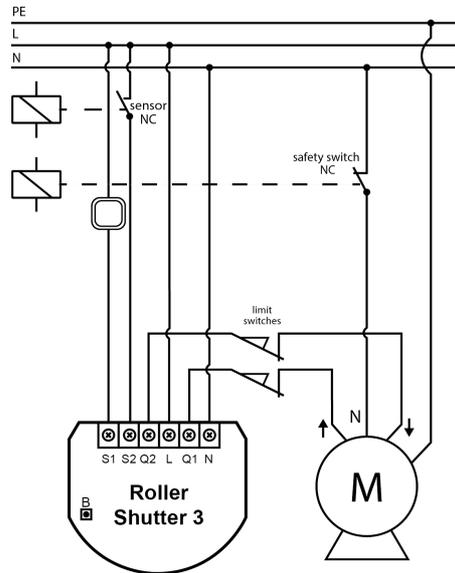
- S1** □ terminal for 1st switch (used to add/remove the device)
- S2** □ terminal for 2nd switch
- Q2** □ 2nd output terminal for shutter motor **DOWN**
- Q1** □ 1st output terminal for shutter motor **UP**
- L** □ terminal for live lead
- N** □ terminal for neutral lead
- B** □ service button (used to add/remove the device and navigate the menu)

#### Installation of blinds with built-in driver



#### Installation of gate motors

- Installation of the gate driver may be performed only by certified professionals.
- The motor must be equipped with the appropriate limit switches.
- It is recommended to connect a NC (normally closed) contact of an IR barrier to S2 terminal. Opening the contact will stop the gate.
- In addition, it is recommended to connect an emergency stop button to the motors neutral (N) wire. In emergency, pushing the emergency stop button will cut the power and stop the gate.



### 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).

Note: If you notice the calibration process fail (e.g. it does not start, movement times are really short or highly inaccurate), adjust parameter 155 value (e.g. reduce it by half).

### Standard roller blind positioning

#### Calibration using a connected momentary switch

1. Make sure:
  - the device is supplied,
  - the momentary switch is connected to S1 and S2 terminals,
  - the device added to the Z-Wave network,
  - parameter 151 is set to 1 or 2.
2. Press and hold UP or DOWN switch for at least 3 seconds
3. Press and hold the same switch again for at least 3 seconds.
4. Press and hold the same switch again for at least 3 seconds.
5. The device will perform the calibration process, completing full cycle □ up, down and up again.
6. Test whether the positioning works correctly.

#### Calibration using the B-button

1. Make sure:
  - the device is supplied,
  - the device added to the Z-Wave network,
  - parameter 151 is set to 1 or 2.
2. Press and hold the B-button.
3. Wait for the LED to glow white.
4. Quickly release and click the B-button again.
5. The device will perform the calibration process, completing full cycle □ up, down and up again
6. Test whether the positioning works correctly.

#### Calibration using parameter

1. Make sure:
  - the device is supplied,
  - the device added to the Z-Wave network,
  - parameter 151 is set to 1 or 2.

2. Set the parameter 150 value to 2

3. The device will perform the calibration process, completing full cycle  up, down and up again
4. The parameter 150 value will be set to 1 after calibration finishes.
5. Test whether the positioning works correctly.

### Slats positioning in Venetian blinds mode

#### Calibration using a connected momentary switch

1. Make sure:
  - the device is supplied,
  - the momentary switch is connected to S1 and S2 terminals,
  - the device added to the Z-Wave network,
  - parameter 151 is set to 2,
  - blinds are calibrated.
2. By default, time of transition between extreme positions is set to 150 (1.5 seconds) in parameter 152.
3. Turn slats between extreme positions by holding UP or DOWN switch:
  - If after full cycle a blind starts moving up or down  decrease the value of parameter 152,
  - If after full cycle the slats do not reach end positions  increase the value of parameter 152,
4. Repeat the 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.

#### Roller blind with built-in driver positioning

1. Make sure:
  - the device is supplied,
  - the momentary switch is connected to S1 and S2 terminals,
  - the device added to the Z-Wave network,
  - parameter 151 is set to 5 or 6.
2. By default, time of transition between extreme positions is set to 600 (6 seconds) in parameters 155 and 156.
3. Move roller blinds between extreme positions by clicking UP or DOWN switch:
  - If roller blind stops before reaching top  increase the value of parameter 155,
  - If roller blind does not stop after reaching top  decrease the value of parameter 155,
  - If roller blind stops before reaching bottom  increase the value of parameter 156,
  - If roller blind does not stop after reaching bottom  decrease value of parameter 156,
4. Repeat the previous step until satisfactory positioning is achieved.
5. Test whether the positioning works correctly.

## Inclusion/Exclusion

On factory default the device does not belong to any Z-Wave network. The device needs to be **added to an existing wireless network** to communicate with the devices of this network. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

### Inclusion

Quickly, triple click the S1 switch.

### Exclusion

Quickly, triple click the S1 switch.

## Product Usage

### Range test

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.

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

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

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 B-button to enter the menu.
5. Wait for the visual LED indicator to glow violet.

6. Quickly release and click the B-button again.
7. Visual indicator will indicate the Z-Wave network's range (range signalling modes described below).
8. To exit Z-Wave range test, click the B-button.

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

#### Z-Wave range tester signaling modes:

*Visual indicator pulsing green* □ the device 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 signalled by visual indicator pulsing yellow.

*Visual indicator glowing green* □ the device communicates with the main controller directly.

*Visual indicator pulsing yellow* □ the device tries to establish a routed communication with the main controller through other modules (repeaters).

*Visual indicator glowing yellow* □ the device 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 signalled with visual indicator pulsing green.

*Visual indicator pulsing violet* □ the device 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 device is not able to connect to the main controller directly or through another Z-Wave network device (repeater).

## Menu

Menu allows to perform Z-Wave network 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 B-button to enter the menu.
5. Wait for the LED to indicate the desired menu position with colour:

- **WHITE** □ start calibration
- **GREEN** □ reset energy consumption memory
- **VIOLET** □ start range test
- **YELLOW** □ reset the device

6. Quickly release and click the B-button again.

## Quick trouble shooting

Here are a few hints for network installation if things dont work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.
3. Remove all dead devices from associations. Otherwise you will see severe delays.
4. Never use sleeping battery devices without a central controller.
5. Dont poll FLIRS devices.
6. Make sure to have enough mains powered device to benefit from the meshing

## Association - one device controls an other device

Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called association. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called association groups and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive the same wireless command wireless command, typically a 'Basic Set' Command.

### Association Groups:

Group Number	Maximum Nodes	Description
1	1	Lifeline
2	5	Roller Shutter
3	5	Slats position control

## Configuration Parameters

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the function better to user needs or unlock further enhanced features.

**IMPORTANT:** Controllers may only allow configuring signed values. In order to set values in the range 128 ... 255 the value sent in the application shall be the desired value minus 256. For example: To set a parameter to 200 it may be needed to set a value of 200 minus 256 = minus 56. In case of a two byte value the same logic applies: Values greater than 32768 may needed to be given as negative values too.

### Parameter 20: Switch type

*This parameter defines as what type the device should treat the switch connected to the S1 and S2 terminals.*

*This parameter is not relevant in gate operating modes (parameter 151 set to 3 or 4). In this case switch always works as a momentary and has to be connected to S1 terminal.*

Size: 1 Byte, Default Value: 2

Setting	Description
0	momentary switches
1	toggle switches
2	single, momentary switch (the switch should be connected to S1 terminal)

#### Parameter 24: Inputs orientation

This parameter allows reversing the operation of switches connected to S1 and S2 without changing the wiring.

Size: 1 Byte, Default Value: 0

Setting	Description
0	default (S1 <input type="checkbox"/> 1st channel, S2 <input type="checkbox"/> 2nd channel)
1	reversed (S1 <input type="checkbox"/> 2nd channel, S2 <input type="checkbox"/> 1st channel)

#### Parameter 25: Outputs orientation

This parameter allows reversing the operation of Q1 and Q2 without changing the wiring (in case of invalid motor connection) to ensure proper operation.

Size: 1 Byte, Default Value: 0

Setting	Description
0	default (Q1 <input type="checkbox"/> 1st channel, Q2 <input type="checkbox"/> 2nd channel)
1	reversed (Q1 <input type="checkbox"/> 2nd channel, Q2 <input type="checkbox"/> 1st channel)

#### Parameter 30: Alarm configuration - 1st slot

This parameter determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification.

For a setting of this parameter, please refer to the manufacturer's manual.

Size: 4 Byte, Default Value: 0

Setting	Description
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#### Parameter 31: Alarm configuration - 2nd slot (Water)

This parameter determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification.

For a setting of this parameter, please refer to the manufacturer's manual.

Size: 4 Byte, Default Value:

Setting	Description
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#### Parameter 32: Alarm configuration - 3rd slot (Smoke)

This parameter determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification.

For a setting of this parameter, please refer to the manufacturer's manual.

Size: 4 Byte, Default Value:

Setting	Description
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#### Parameter 33: Alarm configuration - 4th slot (CO)

This parameter determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification. For a setting of this parameter, please refer to the manufacturer's manual.

For a setting of this parameter, please refer to the manufacturer's manual.

Size: 4 Byte, Default Value:

Setting	Description
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#### Parameter 35: Alarm configuration - 5th slot (Heat)

This parameter determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification.

Size: 4 Byte, Default Value:

Setting	Description
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#### Parameter 40: S1 switch - scenes sent

This parameter determines which actions result in sending scene IDs assigned to them.

Size: 1 Byte, Default Value: 0

Setting	Description
1	Key pressed 1 time
2	Key pressed 2 times
4	Key pressed 3 times
8	Key hold down and key released
15	All

#### Parameter 42: S2 switch - scenes sent

*This parameter determines which actions result in sending scene IDs assigned to them.*

Size: 1 Byte, Default Value: 0

Setting	Description
1	Key pressed 1 time
2	Key pressed 2 times
4	Key pressed 3 times
8	Key hold down and key released
15	All

#### Parameter 60: Measuring power consumed by the device itself

*This parameter determines whether the power metering should include the amount of active power consumed by the device itself.*

Size: 1 Byte, Default Value: 0

Setting	Description
0	function inactive
1	function active

#### Parameter 61: Power reports - on change

*This parameter determines the minimum change in consumed power that will result in sending new power report to the main controller.*

*For loads under 50W, the parameter is not relevant and reports are sent every 5W change.*

*Power reports are sent no often than every 30 seconds.*

Size: 2 Byte, Default Value: 15

Setting	Description
0	reports are disabled
1 - 500	change in power in %

#### Parameter 62: Power reports - periodic

*This parameter determines in what time intervals the periodic power reports are sent to the main controller. Periodic reports do not depend on power change (parameter 61).*

Size: 2 Byte, Default Value: 3600

Setting	Description
0	periodic reports are disabled
30 - 32400	report interval in seconds

#### Parameter 65: Energy reports - on change

*This parameter determines the minimum change in consumed energy that will result in sending new energy report to the main controller.*

Size: 2 Byte, Default Value: 10

Setting	Description
0	reports are disabled
1 - 500	(0.01 <input type="checkbox"/> 5 kWh) <input type="checkbox"/> change in energy

#### Parameter 66: Energy reports - periodic

*This parameter determines in what time intervals the periodic energy reports are sent to the main controller. Periodic reports do not depend on energy change (parameter 65).*

Size: 2 Byte, Default Value: 3600

Setting	Description
0	periodic reports are disabled
30 - 32400	report interval in seconds

**Parameter 150: Force calibration**

By setting this parameter to 2 the device enters the calibration mode. The parameter relevant only if the device is set to work in positioning mode (parameter 151 set to 1, 2 or 4).

Size: 1 Byte, Default Value: 0

Setting	Description
0	device is not calibrated
1	device is calibrated
2	force device calibration

**Parameter 151: Operating mode**

This parameter allows adjusting operation according to the connected device.

Size: 1 Byte, Default Value: 1

Setting	Description
1	roller blind (with positioning)
2	Venetian blind (with positioning)
3	gate (without positioning)
4	gate (with positioning)
5	roller blind with built-in driver
6	roller blind with built-in driver (impulse)

**Parameter 152: Venetian blind - time of full turn of the slats**

For Venetian blinds (parameter 151 set to 2) the parameter determines time of full turn cycle of the slats.

For gates (parameter 151 set to 3 or 4) the parameter determines time after which open gate will start closing automatically (if set to 0, gate will not close).

The parameter is irrelevant for other modes.

Size: 5 Byte, Default Value: 150

Setting	Description
0 - 90000	(0 <input type="checkbox"/> 900s, every 0.01s) <input type="checkbox"/> time of turn

**Parameter 153: Set slats back to previous position**

For Venetian blinds (parameter 151 set to 2) the parameter determines slats positioning in various situations.

The parameter is irrelevant for other modes.

Size: 1 Byte, Default Value: 1

Setting	Description
0	slats return to previously set position only in case of the main controller operation.
1	slats return to previously set position in case of the main controller operation, momentary switch operation, or when the limit switch is reached.
2	slats return to previously set position in case of the main controller operation, momentary switch operation, when the limit switch is reached or after receiving the Switch Multilevel Stop control frame

**Parameter 154: Delay motor stop after reaching end switch**

For blinds (parameter 151 set to 1, 2, 5 or 6) the parameter determines the time after which the motor will be stopped after end switch contacts are closed.

For gates (parameter 151 set to 3 or 4) the parameter determines the time after which the gate will start closing automatically if S2 contacts are opened (if set to 0, gate will not close).

Size: 2 Byte, Default Value: 10

Setting	Description
0 - 60	(0 <input type="checkbox"/> 60s) <input type="checkbox"/> time

**Parameter 155: Motor operation detection**

Power threshold to be interpreted as reaching a limit switch.

Size: 2 Byte, Default Value: 10

Setting	Description
0	reaching a limit switch will not be detected
1 - 255	report interval in watt

**Parameter 156: Time of up movement**

This parameter determines the time needed for roller blinds to reach the top.

For modes with positioning value is set automatically during calibration, otherwise, it must be set manually.

Size: 4 Byte, Default Value: 6000

Setting	Description
1 - 90000	(0.01 <input type="checkbox"/> 900.00s, every 0.01s) <input type="checkbox"/> movement time

### Parameter 157: Time of down movement

*This parameter determines time needed for roller blinds to reach the bottom.*

*For modes with positioning value is set automatically during calibration, otherwise, it must be set manually.*

Size: 4 Byte, Default Value: 6000

Setting	Description
1 - 90000	(0.01 <input type="checkbox"/> 900.00s, every 0.01s) <input type="checkbox"/> movement time

## Technical Data

<b>Dimensions</b>	42.50 x 38.25 x 20.30 mm
<b>Weight</b>	27.83 gr
<b>EAN</b>	5905279987197
<b>IP Class</b>	IP 20
<b>Voltage</b>	230 V
<b>Load</b>	1,7 A
<b>Device Type</b>	Roller Shutter
<b>Generic Device Class</b>	Multilevel Switch
<b>Specific Device Class</b>	Motor Control Device (B)
<b>Firmware Version</b>	05.00
<b>Z-Wave Version</b>	06.02
<b>Z-Wave Product Id</b>	0x010f.0x0303.0x1000
<b>Frequency</b>	Europe - 868,4 Mhz
<b>Maximum transmission power</b>	5 mW

## Supported Command Classes

- Basic
- Application Status
- Switch Multilevel
- Meter
- Crc 16 Encap
- Association Grp Info
- Device Reset Locally
- Central Scene
- Zwaveplus Info
- Multi Channel
- Supervision
- Configuration
- Alarm
- Manufacturer Specific
- Powerlevel
- Protection
- Firmware Update Md
- Association
- Version
- Multi Channel Association
- Security
- Transport Service

- Security 2

## Controlled Command Classes

- Transport Service
- Security 2

## Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of adding new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **WakeUp Notification** — is a special wireless message issued by a Z-Wave device to announce that is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.

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