

# qubino®

Your little magic for the smartest home.

**Qubino**

## **Flush Shutter DC**

**SKU: GOAEZMNHOD1**



## Quickstart

This is a **Window Control (position aware)** 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:

Press service button S for more than 2 second or

Press push button I1 three times within 3s (3 times change switch state within 3 seconds).

## 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.

## Product Description

This Z-Wave module is used to control the motor of blinds, rollers, shades, venetian blinds, etc.. The module can be controlled either through a Z-Wave network or through the wall switch. Precise positioning is supported for motors equipped with mechanical or electronic end switches. The module is designed to be mounted inside a “flush mounting box”, hidden behind a traditional wall switch. Module measures power consumption of motor and support connection of digital temperature sensor. It is designed to act as repeater in order to improve range and stability of Z-wave network.

## 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.

Press service button S for more than 6 second or

Press push button I1 five times within 3s (5 times change switch state within 3 seconds) in the first 60 seconds after the module is connected to the power supply

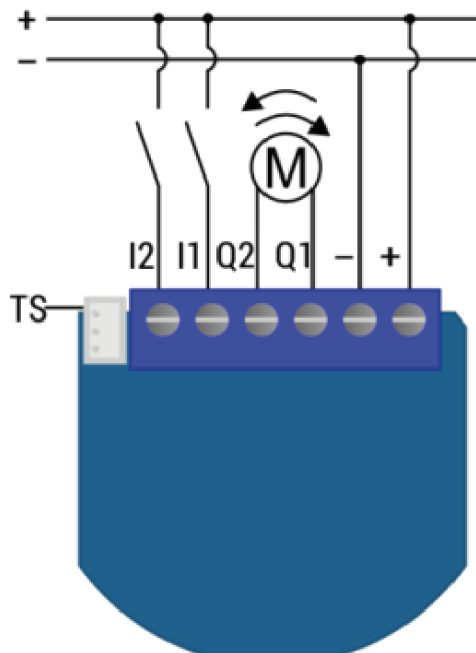
## Safety Warning for Mains Powered Devices

**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

- To prevent electrical shock and/or equipment damage, disconnect electrical power at the main fuse or circuit breaker before installation or any servicing.
- Make sure, that no voltage is present in the installation.
- Prevent the disconnecting device from being switched on accidentally.
- Connect the module according to electrical diagram.
- Locate the antenna far from metal elements (as far as possible).
- Do not shorten the antenna.

## Electrical diagram 12 - 24VDC



+... +VDC (12 – 24VDC)

-... -VDC (0V)

Q1... Output for motor UP (open)

Q2... Output for motor DOWN (close)

I2... Input for switch/push button DOWN (close)

I1... Input for switch/push button UP (open)

TS... Terminal for digital temperature sensor (only for Flush Shutter module compatible digital temperature sensor, which must be ordered separately).

S... Service button

## **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**

Press service button S for more than 2 second or

Press push button I1 three times within 3s (3 times change switch state within 3 seconds).

### **Exclusion**

Press service button S for more than 6 second or

Press push button I1 five times within 3s (5 times change switch state within 3 seconds) in the first 60 seconds after the module is connected to the power supply

### **Auto-Inclusion**

Beside the standard inclusion this devices supports the so called **auto inclusion**. Right after powering up the device remains in inclusion state and can be included by (any) gateway without further actions on the device itself. The auto inclusion mode will time out after some time.

## **Product Usage**

### **Automatic calibration**

Automatic calibration is a process during which the Flush Shutter learns the position of the limit switches.

### **Shutter positioning calibration**

(par. 71 set to 0)

There are two procedures of calibration.



## **Calibration through main controller UI**

- 1) Include the module into the Z-wave network, according to module include instructions.
- 2) Set the parameter 78 (Forced Flush Shutter calibration) value to 1.
- 3) Flush Shutter performs the calibration process, completing full cycle - up, down and up again.
- 4) Set the parameter 78 (Forced Flush Shutter calibration) value to 0.

## **Calibration through the inputs I1 and I2**

- 1) Include the module into the wireless network, according to module inclusion instructions.
- 2) Quick press the switch/push-button connected to I1 input and wait until the Shutter reach upper limit switch.
- 3) Quick press the switch/push-button connected to I2 input and wait until the Shutter reach lower limit switch.
- 4) Quick press the switch/push-button connected to I1 input and wait until the Shutter reach upper limit switch.

## **Slates tilting position calibration**

(par. 71 set to 1)

When enabling venetian blind mode, position calibration for slats titling must be done. After doing this, position and angle of slates can be set. By default full turn time for slates is set to 1,5s. This value can be changed with parameter 72.

- 1) Include and make module calibration according to section 'Shutter positioning calibration'.
- 2) Set parameter 71 to 1 'Venetian blinds'.
- 3) Exclude the module (without reset!).
- 4) Include the module.
- 5) After module inclusion beside main Shutter widget, another widget for slates control will appear on UI.
- 6) By default full turn movement is set to 1,5s. If this time is too long (if after slates full cycle Shutter starts moving up or down), decrease this time defined with parameter 72. If this time is too short (if slates will not turn for full cycle), increase this time defined with parameter 72.

## **Manual operation for Shutter**

(par. 71 set to 0)

Module allows connecting of push-buttons (mono-stable) or switches (bi-stable) to I1 and I2 terminals.

Clicking push-button (<2s) connected to I1 (up), initiates up movement.

Clicking push-button (<2s) connected to I2 (down), initiates down movement.

If the Shutter is moving, each click, of any push-button, will stop the movement.

Keeping pressed push-button (>2s) connected to I1 (up), initiates up movement, until push-button is released.

Keeping pressed push-button (>2s) connected to I2 (down), initiates down movement, until push-button is released.

## **Manual operation for venetian blinds**

(par. 71 set to 1)

Slates on start position - 0 degree

Clicking push-button (for time < full turn slates time-par.72) connected to I1 (up), initiates slates turning towards end - 180 degree position, until push-button is released.

Clicking push-button (for time < full turn slates time-par.72) connected to I2 (down), initiates Shutter down movement.

If the Shutter is moving, each click, of any push-button, will stop the movement.

Keeping pressed push-button (for time > full turn slates time-par.72) connected to I1 (up), initiates full slates turn and up movement, until the push-button is released.

Keeping pressed push-button (for time > full turn slates time-par.72) connected to I2 (down), initiates Shutter down movement, until the push-button is released.

Keeping pressed push-button (for time > (full turn slates time +2s)) connected to I1 (up), initiates up movement, until push-button is released.

### **Slates on end position - 180 degree**

Clicking push-button (for time < full turn slates time-par.72) connected to I1 (up), initiates Shutter up movement.

Clicking push-button (for time < full turn slates time-par.72) connected to I2 (down), initiates slates turning towards start - 0 degree position, until the push-button is released.

If the Shutter is moving, each click, of any push-button, will stop the movement.

Keeping pressed push-button (for time > full turn slates time-par.72) connected to I1 (up), initiates Shutter up movement, until the push-button is released.

Keeping pressed push-button (for time > full turn slates time-par.72) connected to I2 (down), initiates full slates turn and down movement, until the push-button is released.

Keeping pressed push-button (for time > (full turn slates time +2s)) connected to I2 (down), initiates down movement, until push-button is released.

### **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	default reporting group (reserved for the main controller)
2	16	basic on/off (triggered at change of the input I1 state and reflecting its state)
3	16	basic on/off (triggered at change of the input I2 state and reflecting its state)
4	16	basic on/off (triggered at sensing moving direction of roller: up=255, down=0)
5	16	basic on/off (triggered at reaching roller position: bottom=255, top=0)
6	16	basic on/off (triggered at reaching roller position: bottom=255, not bottom=0)
7	16	multilevel set (triggered at changes of value of the Flush Shutter DC position)
8	16	multilevel set (triggered at changes of value of slats tilting position)
9	16	multilevel sensor report (triggered at change of temperature sensor)

## 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 10: Activate/deactivate functions ALL ON / ALL OFF

*Flush Shutter responds to commands ALL ON / ALL OFF that may be sent by the main controller or by other controllers belonging to the system.*

Size: 2 Byte, Default Value: 255

Setting	Description
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
255	ALL ON active, ALL OFF active.



#### Parameter 40: Power reporting in Watts on power change for Q1 or Q2

Set value means percentage, set value from 0 – 100 = 0% - 100%.

**NOTE:** if power changed is less than 1W, the report is not send (pushed), independent of percentage set.

Size: 1 Byte, Default Value: 1

Setting	Description
0	reporting disabled
1 - 100	1% - 100% Reporting enabled. Power report is send (push) only when actual power (in Watts) in real time changes for more than set percentage comparing to previous actual power in Watts, step is 1%.

#### Parameter 42: Power reporting in Watts by time interval for Q1 or Q2

Set value means time interval (0 – 32767) in seconds, when power report is send.

Size: 2 Byte, Default Value: 300

Setting	Description
0	reporting disabled
1 - 32767	1 second - 32767 seconds. Reporting enabled, power report is send with time interval set by entered value.

#### Parameter 71: Operating modes

This parameter defines selection between two available operating modes**NOTE:** After parameter change, first exclude module (without setting parameters to default value) then wait at least 30s and then re include the module!

Size: 1 Byte, Default Value: 0

Setting	Description
0	Shutter mode
1	venetian mode (up/down and slate rotation)

#### Parameter 72: Slats tilting full turn time

This parameter defines the time necessary for slats to make full turn (180 degrees).

**NOTE:** If time set is too high, this will result that after full turn, Shutter will start move up or down, for time remaining.

Size: 2 Byte, Default Value: 150

Setting	Description
0	tilting time disabled
1 - 32767	0,01seconds - 327,67 seconds

### Parameter 73: Slats position

*This parameter defines slats position after up/downmovement through Z-wave or push-buttons.*

Size: 1 Byte, Default Value: 1

Setting	Description
0	Slats return to previously set position only in case of Z-wave control (not valid for limit switch positions).
1	Slats return to previously set position in case of Z-wave control, push-button operation or when the lower limit switch is reached.

### Parameter 74: Motor moving up/down time

*This parameter defines Shutter motor moving time of complete opening or complete closing. **NOTE:** Important is that the reference position to manually set moving time is always Shutter lower position! Set parameter 74 to 0 and move the Shutter (using up/down push buttons or main controller UI) to the lowest desired position. On this Shutter position, set parameter 74 to time for complete opening or complete closing. At this point Shutter can be moved up (open) for set time, but can't be moved down because this position is already set as lower Shutter position. To change Shutter lower position below already set (manual recalibration), parameter 74 must be set to 0 and repeat the procedure described above. In case Shutter has limit switches, but anyhow you would like to limit opening/closing position by time, you can still do it. In case you put time that is longer than opening/closing real time limited by limit switches, Shutter will stop at limit switch, but the module relay will switch off after define time, not by Shutter limit switch. Take in consideration that in this condition, the positioning with slider through UI will not show correct Shutter position.*

Size: 2 Byte, Default Value: 0

Setting	Description
0	moving time disabled (working with limit switches)
1 - 32767	0,1seconds - 3276,7seconds

### Parameter 76: Motor operation detection

*Power threshold to be interpreted when motor reach the limit switch.*

Size: 1 Byte, Default Value: 10

Setting	Description
1 - 127	1-127 W. The value 0 means reaching a limit switch will not be detected.

### Parameter 78: Forced Shutter calibration

*By modifying the parameters setting from 0 to 1 a Shutter enters the calibration mode.*

Size: 1 Byte, Default Value: 0

Setting	Description
1	Start calibration process (when calibration process is finished, completing full cycle - up, down and up, set the parameter 78 (Forced Shutter calibration) value back to 0.

### Parameter 85: Power consumption max delay time

*This parameter defines the max time before motor power consumption is read after one of the relays is switched ON. If there is no power consumption during this max time (motor not connected, damaged or requires higher time to start, motor in end position) the relay will switch OFF. Time is defined by entering it manually.*

Size: 1 Byte, Default Value: 8

Setting	Description
3 - 50	0,3seconds - 5seconds (100ms resolution)

### Parameter 86: Power consumption at limit switch delay time

*This parameter defines the max time at limit switch, when power consumption is below power threshold. If the power consumption during this time is below power threshold (par. 76), the active output will switch off, means that limit switch is reached.*

Size: 1 Byte, Default Value: 8

Setting	Description
3 - 50	0,3seconds - 5seconds (100ms resolution)

### Parameter 90: Time delay for next motor movement

*This parameter defines the minimum time delay between next motor movement (minimum time between switching motor off and on again).*

Size: 5 Byte, Default Value: 1

Setting	Description
1 - 30	0,1seconds - 3seconds (100ms resolution)

### Parameter 110: Temperature sensor offset settings

*Set value is added or subtracted to actual measured value by sensor.*

Size: 2 Byte, Default Value: 32536

Setting	Description
1 - 100	value from 0.1 °C to 10.0 °C is added to actual measured temperature.
1001 - 1100	value from -0.1 °C to -10.0 °C is subtracted to actual measured temperature.

### Parameter 120: Temperature sensor reporting

*If digital temperature sensor is connected, module reports measured temperature on temperature change defined by this parameter.*

Size: 1 Byte, Default Value: 5

Setting	Description
0	Reporting disabled
1 - 127	0,1°C - 12,7°C, step is 0,1°C

### Technical Data

Dimensions	41x36x15 mm
Weight	28 gr
Hardware Platform	ZM5202
EAN	3830062070089
IP Class	IP 20
Voltage	24 V
Load	2 A
Device Type	Window Covering Position/Endpoint Aware
Generic Device Class	Multilevel Switch
Specific Device Class	Motor Control Device (C)
Firmware Version	01.01
Z-Wave Version	04.05
Z-Wave Product Id	0x0159.0x0003.0x0053

### Supported Command Classes

- Basic
- Switch Binary
- Switch Multilevel
- Switch All
- Meter
- Association Grp Info
- Device Reset Locally
- Zwaveplus Info

- Configuration
- Manufacturer Specific
- Powerlevel
- Association
- Version
- Multi Channel Association

## Controlled Command Classes

- Basic
- Switch Multilevel

## 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 it is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.