Qubino

The **INNOVATIVE** and **SMALLEST**

Flush shutter

ORDERING CODE	Z-WAVE FREQUENCY
ZMNHCA2	868,4 MHz
ZMNHCA3	921,4 MHz
ZMNHCA4	908,4 MHz
ZMNHCA5	869,0 Mhz
ZMNHCA6	869,0 Mhz

This Z-Wave module is used to control the motor of blinds, rollers, shades, garage doors, gates, 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.

Supported switches

Module supports **mono-stable** switches (push button) and **bi-stable** switches.

Installation

- Before the installation disconnect power supply.
- Connect the module according to electrical diagram.
- Locate the antenna far from metal elements (as far as possible).
- Do not shorten the antenna.

Danger of electrocution!

- Module installation requires a great degree of skill and may be performed only by a qualified and licensed electrician.
- Even when the module is turned off, voltage may be present on its terminals. Any works on configuration changes related to connection mode or load must be always performed by disconnected power supply (disable the fuse).

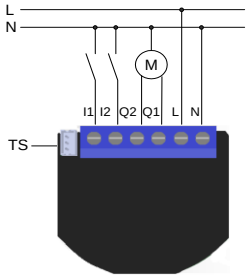
Note!

Do not connect the module to loads exceeding recommended values. Connect the module only in accordance to the below diagrams. Improper connections may be dangerous.

Package contents

- Flush shutter

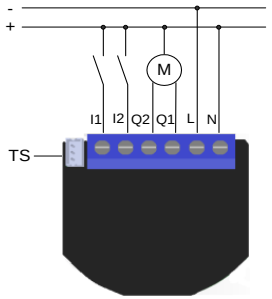
Electrical diagram 230VAC



Notes for the diagram:

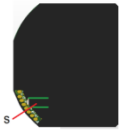
N Neutral lead
L Live lead
Q1 Output for motor UP (open)
Q2 Output for motor DOWN (close)
I2 Input for switch/push button DOWN (close)
I1 Input for switch/push button UP (open)
TS Terminal for digital temperature sensor (only for Flush shutter module compatible digital temperature sensor, which must be ordered separately).

Electrical diagram 24VDC



Notes for the diagram:

N +24VDC
L -24VDC
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 (used to add or remove module from the Z-Wave network)

Durability of the device depends on applied load. For resistive load (light bulbs, etc.) and 4A current consumption of each individual electrical device, the durability exceeds 70 000 switches of each individual electrical device.

Module Inclusion (Adding to Z-wave network)

- Connect module to power supply (with temperature sensor connected - if purchased),
- bring module within maximum 1 meter (3 feet) of the main controller,
- enable add/remove mode on main controller,
- auto-inclusion (30 minutes after connected to power supply) or
- 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)

Module Exclusion/Reset (Removing from Z-Wave network)

- Connect module to power supply
- bring module within maximum 1 meter (3 feet) of the main controller,
- enable add/remove mode on main controller,
- 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.

By this function all parameters of the module are set to default values and own ID is deleted.
If service button S is pressed more than 2 and less than 6 second module is excluded, but configuration parameters are not set to default values.

Association

Association enables Flush shutter module to transfer commands inside Z-wave network directly (without main controller) to other Z-Wave modules.

Associated Groups:
Group 1: multilevel (triggered at changes of value of the Flush shutter position) up to 16 nodes.
Group 2: default reporting group (reserved for the main controller)

Automatic calibration

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

Shutter positioning calibration

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 switch keys (I1, I2)**

1) Include the module into the Z-Wave network, according to module include instructions.
2) Quick press the switch key connected to I1 input and wait until the shutter reach upper limit switch
3) Quick press the switch key connected to I2 input and wait until the shutter reach lower limit switch
4) Quick press the switch key connected to I1 input and wait until the shutter reach upper limit switch

Manual operation

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

Clicking up button (<2s) connected to I1, initiates up movement.
Clicking down button (<2s) connected to I2, initiates down movement.
If the shutter is moving, each click, of any button, will stop the movement.

Keep pressed button (>2s) connected to I1, initiates up movement until the button is released.
Keep pressed button (>2s) connected to I2, initiates down movement until the button is released.

Configuration parameters

Parameter no. 10 - Activate/deactivate functions ALL ON / ALL OFF
Available configuration parameters (data type is 1 Byte DEC):

- default value 255
- 255 - ALL ON active, ALL OFF active.
- 0 - ALL ON is not active ALL OFF is not active
- 1 - ALL ON is not active ALL OFF active
- 2 - ALL ON is not active ALL OFF is not active

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

Parameter no. 40 - Power reporting in Watts on power change for Q1 or Q2
Set value means percentage, set value from 0 – 100 = 0% - 100%. Available configuration parameters (data type is 1 Byte DEC):

- default value 1
- 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%.

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

Parameter no. 42 – Power reporting in Watts by time interval for Q1 or Q2
Set value means time interval (0 – 65535) in seconds, when power report is send. Available configuration parameters (data type is 2 Byte DEC):

- default value 300 (power report in Watts is send each 300s)
- 0 – Reporting Disabled
- 1 – 65535 = 1 second – 65535 seconds. Reporting enabled, power report is send with time interval set by entered value.

Parameter no. 45 - Self-measurement
Module may include power and energy used by module itself in reports sent to the main controller. Available configuration parameters (data type is 1 Byte DEC):

- 0 – default value
- 0 - Self-measurement disabled
- 1 - Self-measurement enable

Parameter no. 74 – Motor moving up/down time
This parameter defines shutter motor moving time of complete opening or complete closing. Available configuration parameters (data type is 2 Byte DEC):

- Default value 0
- 0 – moving time disabled (working with limit switches)
- 1 – 65535 = 0,1seconds – 6553,5seconds

After that time motor is stopped (relay goes to off state)

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 desired lower 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 that 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.

Parameter no. 76 - Motor operation detection
Power threshold to be interpreted when motor reach the limit switch. Available configuration parameters (data type is 1 Byte DEC):

- Default value: 10 (10W).
- Available settings: 0 - 255 (1-255 W)
- The value 0 means reaching a limit switch will not be detected

Parameter no. 78 - Forced Shutter calibration
By modifying the parameters setting from 0 to 1 a Shutter enters the calibration mode. Available configuration parameters (data type is 1 Byte DEC):

- Default value: 0
- 1 - Start calibration process (after shutter performs the calibration process, completing full cycle - up, down and up, set the parameter 78 (Forced Shutter calibration) value back to 0.

Technical Specifications

Power supply	110 - 230 VAC ±10% 50/60Hz, 24-30VDC
Rated load current of AC output (resistive load)*	2 X 4A / 230VAC
Rated load current of DC output (resistive load)	2 X 4A / 30VDC
Output circuit power of AC output (resistive load)	2 X 920W (230VAC)
Output circuit power of DC output (resistive load)	2 X 96W (24VDC)
Power measurement accuracy	P=0-200W, +/-2W P>200W, +/-3%
Digital temperature sensor range (sensor must be ordered separately)	-50 ~ +125°C
Operation temperature	-10 ~ +40°C
Distance	up to 30 m indoors (depending on building materials)
Dimensions (W x H x D)	41,8 x 36,8 x 16,9mm
Weight	28g
Electricity consumption	0,4W
For installation in boxes	Ø ≥ 60mm or 2M
Switching	Relay (2x)

*In case of load other than resistive, pay attention to the value of cos φ and if necessary apply load lower than the rated load. Max current for cos φ=0,4 is 2A at 250VAC, 3A at 24VDC.

Z-Wave Device Class:

BASIC_TYPE_ROUTING_SLAVE
GENERIC_TYPE_SWITCH_MULTILEVEL
SPECIFIC_TYPE_CLASS_B_MOTOR_CONTROL

Z-Wave Supported Command Classes:

COMMAND_CLASS_SWITCH_MULTILEVEL_V3
COMMAND_CLASS_BASIC
COMMAND_CLASS_SWITCH_MULTILEVEL_V3
COMMAND_CLASS_SWITCH_ALL
COMMAND_CLASS_SWITCH_BINARY
COMMAND_CLASS_METER_V3
COMMAND_CLASS_SENSOR_MULTILEVEL_V3
COMMAND_CLASS_POWERLEVEL
COMMAND_CLASS_ASSOCIATION
COMMAND_CLASS_CONFIGURATION
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_VERSION
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC

This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from any other manufacturers. All constantly powered nodes in the same network will act as repeaters regardless of the vendor in order to increase reliability of the network.

Important disclaimer

Z-wave wireless communication is inherently not always 100% reliable, and as such, this product should not be used in situations in which life and/or valuables are solely dependent on its function.

Warning!

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.
Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

This user manual is subject to change and improvement without notice.

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