

## Flush 2 relays

ORDERING CODE	Z-WAVE FREQUENCY
ZMNHBA2	868,4 MHz
ZMNHBA3	921,4 MHz
ZMNHBA4	908,4 MHz
ZMNHBA5	869,0 MHz
ZMNHBA6	916,0 MHz

This Z-Wave module is used for switching on or off two electrical devices (e.g. lights, fans, etc ...). The module can be controlled either through Z-Wave network or through the wall switches.

The module is designed to be mounted inside a "flush mounting box", hidden behind a traditional wall switch.

Module measures power consumption of two electrical devices and supports 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. The module is factory set to operate with 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).

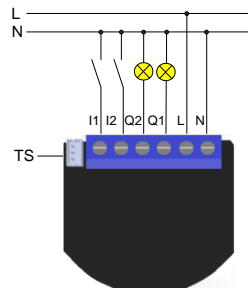
### Note!

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 2 relays

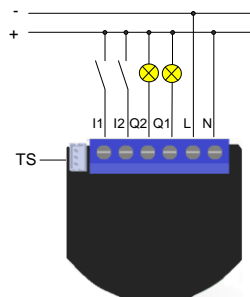
### Electrical diagram 230VAC



#### Notes for the diagram:

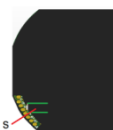
- N** Neutral lead
- L** Live lead
- Q1** Output for electrical device no. 1
- Q2** Output for electrical device no. 2
- I2** Input for switch to control electrical device no.2
- I1** Input for switch to control electrical device no.1
- TS** Terminal for digital temperature sensor (only for Flush 2 relays module compatible digital temperature sensor, which must be ordered separately).

### Electrical diagram 24VDC



#### Notes for the diagram:

- N** +24VDC
- L** -24VDC
- Q1** Output for electrical device no. 1
- Q2** Output for electrical device no. 2
- I2** Input for switch to control electrical device no.2
- I1** Input for switch to control electrical device no.1
- TS** Terminal for digital temperature sensor (only for Flush 2 relays 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 6second module is excluded, but configuration parameters are not set to default values

### Association

Association enables Flush 2 relays module to transfer commands inside Z-Wave network directly (without main controller) to other Z-Wave modules.

### Associated Groups:

- Group 1: basic on/off (triggered at change of the output Q1 state and reflecting its state) up to 16 nodes.
- Group 2: basic on/off (triggered at change of the output Q2 state and reflecting its state) up to 16 nodes.
- Group 3: default reporting group (reserved for the main controller).

### Configuration parameters

#### Parameter no. 1 – Input 1 switch type

Available configuration parameters (data type is 1 Byte DEC):

- default value 1
- 0 mono-stable switch type (push button)
- 1 bi-stable switch type

#### Parameter no. 2 – Input 2 switch type

Available configuration parameters (data type is 1 Byte DEC):

- default value 1
- 0 mono-stable switch type (push button)
- 1 bi-stable switch type

### 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 active ALL OFF is not active
- On/Off 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. 11 - Automatic turning Off relay Q1 after set time

Available configuration parameters (data type is 2 Byte DEC):

- Default value 0
- 0 - Auto OFF disabled
- 1- 65535 = 10mseconds – 655,35 seconds. Auto OFF enabled, with define time, step is 10mseconds.

### Parameter no. 12 - Automatic turning Off relay Q2 after set time

Available configuration parameters (data type is 2 Byte DEC):

- Default value 0
- 0 - Auto OFF disabled
- 1- 65535 = 10mseconds – 655,35 seconds. Auto OFF enabled, with define time, step is 10mseconds.

### Parameter no. 30 - Saving the state of the relays Q1 and Q2 after a power failure

Available configuration parameters (data type is 1 Byte DEC):

- default value 0
- 0 – Flush 2 relays module saves its state before power failure (it returns to the last position saved before a power failure)
- 1 - Flush 2 relays module does not save the state after a power failure, it returns to "off" position.

### Parameter no. 40 – Power reporting in Watts on power change for Q1

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. 41 – Power reporting in Watts on power change for 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**

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. 43 – Power reporting in Watts by time interval for 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.

**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\_BINARY  
SPECIFIC\_TYPE\_POWER\_SWITCH\_BINARY

**Z-Wave Supported Command Classes:**

COMMAND\_CLASS\_BASIC  
COMMAND\_CLASS\_SWITCH\_BINARY  
COMMAND\_CLASS\_MULTI\_CHANNEL\_V2  
COMMAND\_CLASS\_SWITCH\_ALL  
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

**Endpoint 1 (I1):**

**Device Class:**

GENERIC\_TYPE\_SWITCH\_BINARY  
SPECIFIC\_TYPE\_POWER\_SWITCH\_BINARY

**Command Classes:**

COMMAND\_CLASS\_SWITCH\_BINARY  
COMMAND\_CLASS\_METER\_V3

**Endpoint 2 (I2):**

**Device Class:**

GENERIC\_TYPE\_SWITCH\_BINARY  
SPECIFIC\_TYPE\_POWER\_SWITCH\_BINARY

**Command Classes:**

COMMAND\_CLASS\_SWITCH\_BINARY  
COMMAND\_CLASS\_METER\_V3

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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