Qubino

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

Flush 1 relay

ORDERING CODE	Z-WAVE FREQUENCY
ZMNHAD1	868,4 MHz
ZMNHAD2	921,4 MHz
ZMNHAD3	908,4 MHz
ZMNHAD4	869,0 MHz
ZMNHAD5	916,0 MHz

This Z-Wave module is used for switching on or off the electrical device (e.g. light, fan, etc ...). The module can be controlled either through Z-wave network or through the wall switch.
The module is designed to be mounted inside a “flush mounting box”, hidden behind a traditional wall switch.
Module measures power consumption of electrical device 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).

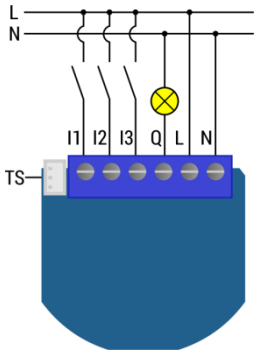
Note!

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 1 relay

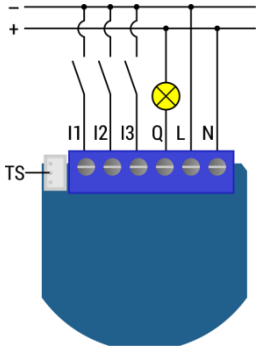
Electrical diagram 230VAC



Notes for the diagram:

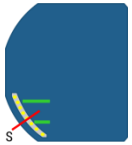
N Neutral lead
L Live lead
Q Output for electrical device
I3 Input for switch /push button or sensor
I2 Input for switch /push button or sensor
I1 Input for switch /push button
TS Terminal for digital temperature sensor (only for Flush 1 relay module compatible digital temperature sensor, which must be ordered separately).

Electrical diagram 24VDC



Notes for the diagram:

N + VDC
L - VDC
Q Output for electrical device
I3 Input for switch /push button or sensor
I2 Input for switch /push button or sensor
I1 Input for switch /push button
TS Terminal for digital temperature sensor (only for Flush 1 relay 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 module depends on applied load. For resistive load (light bulbs, etc.) and 10A current consumption of each individual electrical device, the durability exceeds 100.000 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).

NOTE:When connecting temperature sensor to module that has already been included, you have to exclude module first. Connect the sensor and re-include the module.

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 1 relay module to transfer commands inside Z-Wave network directly (without main controller) to other Z-Wave modules.
Associated Groups:
Group 1: default reporting group (reserved for the main controller).
Group 2: basic on/off (triggered at change of the output Q state and reflecting its state) up to 16 nodes.
Group 3: basic on/off (triggered at change of the input I2 state and reflecting its state) up to 16 nodes.
Group 3: basic on/off (triggered at change of the input I3 state and reflecting its state) up to 16 nodes.

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 contact type
Available configuration parameters (data type is 1 Byte DEC):
- default value 0
- 0 NO (normally open) input type
- 1 NC (normally close) input type

Parameter no. 3 – Input 3 contact type
Available configuration parameters (data type is 1 Byte DEC):
- default value 0
- 0 NO (normally open) input type
- 1 NC (normally close) input type

Parameter no. 10 - Activate / deactivate functions ALL ON/ALL OFF
Available configuration parameters (data type is 2 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

Flush 1 relay 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 output after set time
When relay is ON it goes automatically OFF after time defined by this parameter. Timer is reset to zero each time the module receive ON command regardless from where it comes (push button, associated module, controller,..).
Available configuration parameters (data type is 2 Byte DEC):
- default value 0
- 0 - Auto OFF disabled
- 1 – 32535 = 1second (0,01s) – 32535 seconds (325,35s) Auto OFF enabled with define time, step is 1s or 10ms according to parameter nr.15.

Parameter no. 12 - Automatic turning on output after set time
When relay is OFF it goes automatically ON after time defined by this parameter. Timer is reset to zero each time the module receive OFF command regardless from where it comes (push button, associated module, controller,..). Available configuration parameters (data type is 2 Byte DEC):
- default value 0
- 0 - Auto ON disabled

- 1 – 32535 = 1second (0,01s) – 32536 seconds (325,35s) Auto ON enabled with define time, step is 1s or 10ms according to parameter nr.15.

Parameter no. 15 - Automatic turning off / on seconds or milliseconds selection

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

- default value 0
- 0 – seconds selected
- 1 – milliseconds selected

NOTE: Parameter is the same for turning OFF or ON.

Parameter no. 30 - Saving the state of the relay after a power failure

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

- default value 0
- 0 – Flush 1relay module saves its state before power failure (it returns to the last position saved before a power failure)
- 1 - Flush 1relay 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

Set value means percentage, set value from 0 – 100 = 0% - 100%. Available configuration parameters (data type is 1 Byte DEC):

- default value 10 = 10%
- 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

Set value means time interval (0 – 32535) in seconds, when power report is send. Available configuration parameters (data type is 2 Byte DEC):

- default value 300 = 300s
- 0 – reporting disabled
- 1 – 32535 = 1second – 32535 seconds. Reporting enabled. Power report is send with time interval set by entered value.

Parameter no. 63 – Output Switch selection

Set value means the type of the device that is connected to the output. The device type can be normally open (NO) or normally close (NC). Available configuration parameters (data type is 1 Byte DEC):

- default value 0
- 0 - When system is turned off the output is 0V (NC).
- 1 - When system is turned off the output is 230V or 24V (NO).

Parameter no. 100 – Enable / Disable Endpoints I2 and I3

Enabling I2 and I3 or both of them, means that Endpoint (I2) and Endpoint (I3) or both will be present on UI. Disabling them will result in hiding endpoints according to parameter set value. Note that hiding endpoint has no impact on it functionality. Available configuration parameters (data type is 1 Byte DEC):

- default value 3
- 3 - Endpoints, I2, I3 enabled
- 2 - Endpoints, I2 enabled, I3 disabled
- 1 - Endpoints, I2 disabled, I3 enabled
- 0 - Endpoints, I2, I3 disabled

NOTE: After parameter change module has to be reconfigured!

Parameter no. 110 – Temperature sensor offset settings

Set value is added or subtracted to actual measured value by sensor. Available config. parameters (data type is 2 Byte DEC):

- default value 32536
- 32536 – offset is 0.0C
- From 1 to 100–value from 0.1°C to 10.0°C is added to actual measured temperature.
- From 1001 to 1100 – value from -0.1 °C to -10.0 °C is subtracted to actual measured temperature.

Parameter no. 120 – Digital temperature sensor reporting

If digital temperature sensor is connected, module reports measured temperature on temperature change defined by this parameter. Available configuration parameters (data type is 1 Byte DEC):

- default value 5 = 0,5°C
- 0 – Reporting disabled
- 1- 127 = 0,1°C – 12,7°C, step is 0,1°C

Technical Specifications

Power supply	110 - 230 VAC ±10% 50/60Hz, 24-30VDC
Rated load current of AC output (resistive load)*	1 X 10A / 230VAC
Rated load current of DC output (resistive load)	1 X 10A / 30VDC
Output circuit power of AC output (resistive load)	2300W (230VAC)
Output circuit power of DC output (resistive load)	240W (24VDC)
Power measurement accuracy	P=5-50W, +/-3W P>50W, +/-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 (WxHxD) (package)	41,8x36,8x15,4mm (79x52x22mm)
Weight (Brutto with package)	28g (34g)
Electricity consumption	0,4W
For installation in boxes	Ø ≥ 60mm or 2M
Switching	Relay

* 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 3A at 250VAC, 3A at 24VDC L/R=7ms.

Z-Wave Device Class:

ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON
GENERIC_TYPE_SWITCH_BINARY
SPECIFIC_TYPE_POWER_SWITCH_BINARY

Z-Wave Supported Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_DEVICE_RESET_LOCALLY
COMMAND_CLASS_POWERLEVEL
COMMAND_CLASS_BASIC
COMMAND_CLASS_SWITCH_ALL
COMMAND_CLASS_SWITCH_BINARY
COMMAND_CLASS_METER_V4
COMMAND_CLASS_SENSOR_MULTILEVEL_V7
COMMAND_CLASS_MULTI_CHANNEL_V4
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_CONFIGURATION
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC

Endpoint 1

COMMAND_CLASS_ZWAVEPLUS_INFO
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_DEVICE_RESET_LOCALLY
COMMAND_CLASS_POWERLEVEL
COMMAND_CLASS_BASIC
COMMAND_CLASS_SWITCH_ALL
COMMAND_CLASS_SWITCH_BINARY
COMMAND_CLASS_METER_V4
COMMAND_CLASS_SENSOR_MULTILEVEL_V7
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_CONFIGURATION
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC

Endpoint 2 (I2):

Device Class:

ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON
GENERIC_TYPE_SENSOR_NOTIFICATION
SPECIFIC_TYPE_NOTIFICATION_SENSOR

Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_SENSOR_BINARY
COMMAND_CLASS_BASIC
COMMAND_CLASS_NOTIFICATION_V5
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC

Endpoint 3 (I3):

Device Class:

ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON
GENERIC_TYPE_SENSOR_NOTIFICATION
SPECIFIC_TYPE_NOTIFICATION_SENSOR

Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_SENSOR_BINARY
COMMAND_CLASS_BASIC
COMMAND_CLASS_NOTIFICATION_V5
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC

NOTE**:** The above list is valid for the product with a temperature sensor connected to TS terminal. In case the sensor is not connected then following command class isn't supported:
COMMAND_CLASS_SENSOR_MULTILEVEL_V7

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.

NOTE:
User manual is valid for module with SW version S1 (SW version is part of P/N)!
Example: P/N: ZMNHADx H1**S1**P1

Qubino
Goap d.o.o. Nova Gorica
Ulica Klementa Juga 007
5250 Solkan
Slovenia

E-mail: info@qubino.com
Tel: +386 5 335 95 00
Web: www.qubino.com

Date: 04.06.2015
Document: Qubino_Flush 1 relay PLUS user manual_V1.0_eng