Qubino

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

Flush pilot wire

ORDERING CODE	Z-WAVE FREQUENCY
ZMNHJD1	868,4 MHz
ZMNHJD2	921,4 MHz
ZMNHJD3	908,4 MHz
ZMNHJD4	869,0 MHz
ZMNHJD5	916,0 MHz

This Z-Wave module is used to control electric Radiators with 6 different working modes by pilot wire control signal. The module can be controlled either through a Z-Wave network or through the wall switch.
The module is designed to be mounted inside a “flush mounting box” and is hidden behind a traditional wall switch.
Module 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 mono-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).

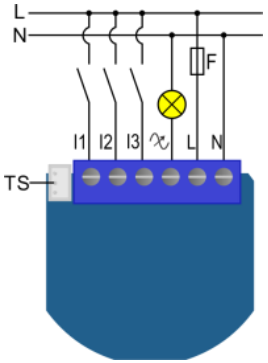
Note!

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.
Electrical installation must be protected by over current protection fuse 1A, Tag lag T, rated breaking capacity 1500V (ESKA 522.7..) according to wiring diagram.

Package contents:

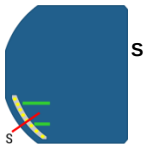
- Flush pilot wire module

Electrical diagram 230VAC



Notes for the diagram:

N	Neutral lead
L	Live lead
	Output control signal
I3	Input for switch/push button
I2	Input for switch/push button
I1	Input for switch/push button
TS	Terminal for digital temperature sensor (only for Flush pilot wire module compatible digital temperature sensor, which must be ordered separately).



S Service button (used to add or remove module from the Z-Wave network).

NOTE: Service button S can’t be used when module is connected to 110-230V power supply.

Module Inclusion (Adding to Z-Wave network)

- Connect module to power supply (with temperature sensor connected - if purchased),
- enable add/remove mode on main controller
- auto-inclusion (works for about 5 seconds 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).

NOTE1: For auto-inclusion procedure, first set main controller into inclusion mode and then connect module to power supply.
NOTE2: When connecting temperature sensor to module that has already been included, you have to exclude module first. Switch off power supply, 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 (3feet) 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 seconds (or if push button I1 is pressed three times within 3s) module is excluded, but configuration parameters are not set to default values.

Association

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

Associated Groups:

Group 1: Lifeline group (reserved for communication with the main controller), 1 node allowed.
Group 2: multilevel (triggered at changes of state/value of the Flush pilot wire)
Group 3: basic on/off (triggered at change of the input I1 state and reflecting its state).
Group 4**:** basic on/off (triggered at change of the input I2 state and reflecting its state).
Group 5: basic on/off (triggered at change of the input I3 state and reflecting its state).

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. 3 – Input 3 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. 4 – Input 1 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. 5 – 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. 6 – 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. 11 – Input 1 operation mode selection
Available configuration parameters (data type is 1 Byte DEC):
- default value 1
- 0 – button does not influence on selected mode
- 1 – Comfort
- 2 – Comfort-1°C
- 3 – Comfort-2°C
- 4 – Eco Mode
- 5 – Frost Protection
- 6 – Stop

Parameter no. 12 – Input 2 operation mode selection
Available configuration parameters (data type is 1 Byte DEC):
- default value 4
- 0 – button does not influence on selected mode
- 1 – Comfort
- 2 – Comfort-1°C
- 3 – Comfort-2°C
- 4 – Eco Mode
- 5 – Frost Protection
- 6 – Stop

Parameter no. 13 – Input 3 operation mode selection
Available configuration parameters (data type is 1 Byte DEC):
- default value 5
- 0 – button does not influence on selected mode
- 1 – Comfort
- 2 – Comfort-1°C
- 3 – Comfort-2°C
- 4 – Eco mode
- 5 – Frost Protection
- 6 – Stop

Parameter no. 30 - Saving the state of the device after a power failure
Available configuration parameters (data type is 1 Byte DEC):
- default value 0
- 0 – Flush pilot wire module saves its state before power failure (it returns to the last position saved before a power failure)

- 1 – Flush pilot wire module does not save the state after a power failure, it returns to "Stop" position.

Technical Specifications

Power supply	230 VAC ±10% 50Hz
Rated load current of AC output	0,85A / 230VAC
Output circuit power of AC output (resistive load)*	200W (230VAC)
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	0,7W
For installation in boxes	Ø ≥ 60mm or 2M

Operation mode

This module controls electric radiators with pilot wire by 6 different control signals:

1. Comfort

This order is characterized by the absence of applied voltage. In this case the heater is operating normally regulating its heating position of the thermostat. Professionals speak comfort temperature. This is the default mode that operates convectors in facilities not equipped with control box.

2. Comfort -1°C

The full wave of 230 volts is applied for 3 seconds followed by an absence of voltage with duration of 297 sec. The effect is a 1°C temperature decrease or Comfort -1°C.

3. Comfort -2°C

The full wave of 230 volts is applied for 7 seconds and followed by an absence of voltage with duration of 293 sec. The effect is a 2°C temperature decrease or Comfort -2°C.

4. Eco mode

The full wave of 230 volts is applied continuously. The temperature is lowered to about 3.5°C (Eco mode). The current taken by the pilot wire reaches its maximum value in this case, 50 mA!

5. Frost protection

Only the negative half-wave -115 volts is applied. The frost protection mode is obtained.

6. Stop

Only the positive half cycle 115V is applied. This mode stops the heating.

Operation mode with switches

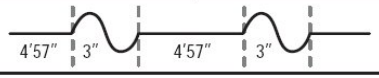
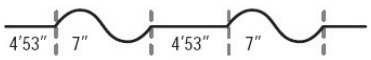
Default values:
Input1 – Start Operation mode 1 - Comfort
Input2 – Start Operation mode 4 – Eco mode
Input3 – Start Operation mode 5 – Frost protection

By pressing the push button connected to one of the inputs, the defined Operation mode is selected. In case bi-stable switches are used, switches are working to toggle signal, anytime position of the switch is changed, it selects Operation mode.

When the mode is selected with switches the following values are displayed on the UI:

Comfort :	0x63 (99)
Comfort -1°C:	0x32 (50)
Comfort -2°C :	0x28 (40)
Eco :	0x1E (30)
Frost protect.:	0x14 (20)
Stop :	0x00 (0)

Mode	Z-wave command value	Electrical 230VAC signal output
Comfort	51-99 / ON	Off
Comfort-1°C	41-50	297 seconds Off, 3 seconds On
Comfort-2°C	31-40	293 seconds Off, 7 seconds On
Eco mode	21-30	Full On
Frost Protection	11-20	Negative sinus On, Positive sinus Off
Stop	0-10 / OFF	Negative sinus Off, Positive sinus On

Mode	Electric signal	
Confort	No signal	
Comfort -1°C		
Comfort -2°C		
Eco Mode	230V with full wave	
Frost Protect.	Negative half-wave	
Stop	Positive half-wave	

Z-Wave Device Class:
BASIC_TYPE_ROUTING_SLAVE
GENERIC_TYPE_SWITCH_MULTILEVEL
SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL

Z-Wave supported Command Classes
COMMAND_CLASS_ZWAVEPLUS_INFO
COMMAND_CLASS_VERSION
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_SWITCH_MULTILEVEL_V3
COMMAND_CLASS_METER_V4
COMMAND_CLASS_SENSOR_MULTILEVEL
COMMAND_CLASS_MULTI_CHANNEL_V4
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATIN_V3
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_MARK,
COMMAND_CLASS_BASIC

Endpoint 1 (I1):
Device Class:
GENERIC_TYPE_SENSOR_BINARY
SPECIFIC_TYPE_NOT_USED
Command Classes:
COMMAND_CLASS_ZWAVEPLUS_INFO_V2;
COMMAND_CLASS_VERSION_V2;
COMMAND_CLASS_BASIC_V2;
COMMAND_CLASS_SENSOR_BINARY;
COMMAND_CLASS_ASSOCIATION_V2;
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3;
COMMAND_CLASS_ASSOCIATION_GRP_INFO;
COMMAND_CLASS_MARK;
COMMAND_CLASS_BASIC;

Endpoint 2 (I2):
Device Class:
GENERIC_TYPE_SENSOR_BINARY
SPECIFIC_TYPE_NOT_USED
Command Classes:
COMMAND_CLASS_ZWAVEPLUS_INFO_V2;
COMMAND_CLASS_VERSION_V2;
COMMAND_CLASS_BASIC_V2;
COMMAND_CLASS_SENSOR_BINARY;
COMMAND_CLASS_ASSOCIATION_V2;
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3;
COMMAND_CLASS_ASSOCIATION_GRP_INFO;
COMMAND_CLASS_MARK;

Endpoint 3 (I3):
Device Class:
GENERIC_TYPE_SENSOR_BINARY
SPECIFIC_TYPE_NOT_USED
Command Classes:
COMMAND_CLASS_ZWAVEPLUS_INFO_V2;
COMMAND_CLASS_VERSION_V2;
COMMAND_CLASS_BASIC_V2;
COMMAND_CLASS_SENSOR_BINARY;
COMMAND_CLASS_ASSOCIATION_V2;
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3;
COMMAND_CLASS_ASSOCIATION_GRP_INFO;
COMMAND_CLASS_MARK;

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: ZMNHJDx H1**S1**P1

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Date: 23.12.2015
Document: Qubino_Flush pilot wire_PLUS user manual_V1.1_eng