



## Flush PWM Thermostat

ORDERING CODE	Z-WAVE FREQUENCY
ZMNHLD1	868,4 MHz
ZMNHLD2	921,4 MHz
ZMNHLD3	908,4 MHz
ZMNHLD4	869,0 MHz
ZMNHLD5	916,0 MHz
ZMNHLD8	865,2 MHz

This Z-Wave module is used to regulate temperature. Regulation is done using full wave PWM technology. 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" and is hidden behind a traditional wall switch. Module measures power consumption of connected device. 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

- 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.

### 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!

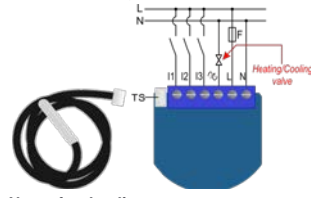
Do not connect the module to loads exceeding recommended values. Connect the module only in accordance to the below diagrams. Improper connections may be dangerous.

**Electrical installation must be protected by directly associated over current protection fuse 1A, gG or Time lag T, rated breaking capacity 1500A (ESKA 522.717) must be used according to wiring diagram to achieve appropriate overload protection of the module. The fuse must be installed in fuse holder type: Adels contact 503 Si / 1 DS**

### Package contents:

- Flush PWM thermostat + Temperature sensor

### Electrical diagram 230VAC



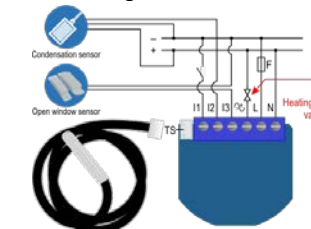
#### Notes for the diagram:

- N Neutral lead
- L Live lead
- Output

- I3 Input for switch /push button or sensor\*
- I2 Input for switch /push button or sensor\*
- I1 Input for switch /push button or sensor\*
- TS Terminal for digital temperature sensor (only for Flush PWM thermostat module compatible digital temperature sensor).

\*For details please check parameters 11, 12 and 13

### Electrical diagram 24VDC

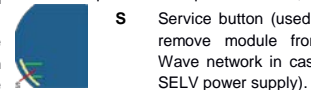


#### Notes for the diagram:

- N + VDC
- L - VDC
- Output

- I3 Input for switch /push button or sensor\*
- I2 Input for switch /push button or sensor\*
- I1 Input for switch /push button or sensor\*
- TS Terminal for digital temperature sensor (only for Flush PWM thermostat module compatible digital temperature sensor).

\*For details please check parameters 11, 12 and 13



WARNING: Service button S **must NOT 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),
  - enable add/remove mode on main controller
  - auto-inclusion (works for about 5 seconds after connected to power supply) or
  - press push button I1 three times within 3s (3 times change switch state within 3 seconds) or
  - press service button S (only applicable for 24 V SELV supply voltage) for more than 2 second.
- NOTE 1: For auto-inclusion procedure, first set main controller into inclusion mode and then connect module to power supply.
- NOTE 2: 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 wireless 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 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 or
- press service button S (only applicable for 24 V SELV supply voltage) for more than 6 second.

By this function all parameters of the module are set to default values and own ID is deleted.

If push button I1 is pressed three times within 3s (or service button S is pressed more than 2 and less than 6 seconds) module is excluded, but configuration parameters are not set to default values.

NOTE: If the module is included with parameters 100,101 or 102 with values different to default and module reset is done, wait at least 30s before next inclusion.

### Association

Association enables PWM thermostat 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: basic on/off (triggered at change of the output Q state and reflecting its state) up to 16 nodes.
- Group 3: SENSOR\_MULTILEVEL\_GET (triggered once per minute if Parameter 121 is not 0) up to 16 nodes.
- Group 4: basic on/off (triggered by Too high temperature limit, it send 0x00 in Heating mode and 0xFF in Cooling mode, triggered by Too low temperature limit, it send 0x00 in Heating mode and 0xFF in Cooling mode; hysteresis is 1°C) up to 16 nodes.
- Group 5: THERMOSTAT\_SETPOINT\_GET (triggered once per minute if Parameter 121 is not 0) up to 16 nodes.
- Group 6: basic on/off (triggered by change of I1 if window sensor functionality is selected by parameter no. 11) up to 16 nodes.
- Group 7: basic on/off (triggered by change of I2 if condense sensor functionality is selected by parameter no. 12) up to 16 nodes.
- Group 8: basic on/off (triggered by change of I3 if flood sensor functionality is selected by parameter no. 13) up to 16 nodes.
- Group 9: sensor multilevel report (triggered by change of temperature) up to 16 nodes.

### Configuration parameters

#### Parameter no. 1 – Input I1 switch type

Available config. 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 I2 switch type

See parameter 1 (valid for I2 instead of I1)

#### Parameter no. 3 – Input I3 switch type

See parameter 1 (valid for I3 instead of I1)

#### Parameter no. 4 – Input 1 contact type

Available config. parameters (data type is 1 Byte DEC):

- default value 0
- 0 - NO (normally open) input type
- 1 - NC (normally close) input type

NOTE: This parameter has influence only when parameter no. 11 is set to the value "2". After setting this parameter, switch the window sensor once, so that the module could determine the input state.

#### Parameter no. 5 – Input 2 contact type

See parameter 4 (valid for I2 instead of I1)

NOTE: This parameter has influence only when parameter no. 12 is set to the value "2000". After setting this parameter, switch the condense sensor once, so that the module could determine the input state.

#### Parameter no. 6 – Input 3 contact type

See parameter 4 (valid for I3 instead of I1)

NOTE: This parameter has influence only when parameter no. 13 is set to the value "2". After setting this parameter, switch the flood sensor once, so that the module could determine the input state.

### Parameter no. 10 - Activate / deactivate functions ALL ON/ALL OFF

Available config. 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 PWM thermostat 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- I1 Functionality selection

Available config. parameters (data type is 2 Byte DEC):

- default value 1
- 32767 – input I1 doesn't influence on the Heat/Cool process

1 - input I1 changes the mode of the thermostat between Off and Heat/Cool. In this case function on window sensor is disabled

2 - input I1 influences on heating/cooling valves according to status of window sensor. In this case function of Off and Heat/Cool selection by I1 is disabled.

NOTE: If "Window Sensor" selected (value set to "2"), parameter 100 (enable/disable endpoint) must be set to non zero value and module re-included!

### Parameter no. 12 – I2 Functionality selection

Available config. parameters (data type is 2 Byte DEC):

- default value 32767
- 32767 - input I2 does not influence on the Heat/Cool process

From 0 to 990 - Temperature set point from 0.0 °C to 99.0 °C. When I2 is pressed, it automatically set temperature setpoint according to value defined here. In this case function of condense sensor is disabled

From 1001 to 1150 - Temperature set point from -0.1 °C to -15.0 °C. When I2 is pressed, it automatically set temperature setpoint according to value defined here. In this case function of condense sensor is disabled

2000 - Input I2 influences on the cooling valve according to status of condense sensor. In this case function of setpoint selection with I2 is disabled

NOTE: If "Condense Sensor" selected (value set to "2000"), parameter 101 (enable/disable endpoint) must be set to non zero value and module re-included!

### Parameter no. 13 – I3 Functionality selection

Available config. parameters (data type is 2 Byte DEC):

- default value 32767
- 32767 - input I3 does not influence on the heat/cool process

1 - input I3 changes the mode of the thermostat between Heat and Cool and override parameter 59. In this case function on flood sensor is disabled

2 - input I3 influences on heating/cooling valves according to status of flood sensor. In this case function of Heat/Cool selection by I3 is disabled

NOTE1: If this parameter is changed, it is necessary to re-include the module.

NOTE2: If "Flood Sensor" selected (value set to "2"), parameter 102 (enable/disable endpoint) must be set to non zero value and module re-included!

### 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 0
- 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 – 32767) in seconds, when power report is send. Available config. parameters (data type is 2 Byte DEC):

- default value 0 (power report is disabled)
- 0 - reporting disabled

- 1 - 32767 = 1 second - 32767 seconds. Reporting enabled. Power report is send with time interval set by entered value.

### Parameter no. 45 – Antifreeze

Set value means at which temperature the device will be turned on even if the thermostat was manually set to off. Available config. parameters (data type is 2 Byte DEC):

- default value 50 (5,0 °C)
- 0 - 127 = 0,0°C ... 12,7 °C
- 1001 - 1127 = -0,1°C ... -12,6 °C

- 255 - Antifreeze functionality disabled

NOTE: Antifreeze is activated only in heating mode.

### Parameter no. 50 - PWM maximum value

Available config. parameters (data type is 1 Byte DEC):

- default value 100 (Maximum PWM value)
- 2-100 = 2%-100%, step is 1%. Maximum PWM set by entered value

NOTE: The maximum level may not be lower than the minimum level!

### Parameter no. 51 - PWM minimum value

Available config. parameters (data type is 1 Byte DEC):

- Default value 0 (Minimum dimming value is 0%)
- 1- 99 = 1% - 99%, step is 1%. Minimum PWM set by entered value.

NOTE: The minimum level may not exceed max. level!

### Parameter no. 52 - PWM cycle duration

Available config. parameters (data type is 1 Byte DEC):

- default value 10 (Minimum dimming value is 0%)
- 5 - 127 = 1 - 127s, step is 1s. PWM cycle duration set by entered value.

NOTE: PWM cycle duration define the summary of all ON plus OFF time periods. For example if Output is set to 70% with PWM cycle duration of 20s, output will be ON for 14s then OFF 6s, again 14s ON, etc...

### Parameter no. 53 - PID value inside deadband

Available config. parameters (data type is 1 Byte DEC):

- default value 0 (PID value equal PWM minimum value)
- 1 - PID value set to LAST VALUE

NOTE: When value is set to "0", PID inside deadband is forced to PWM minimum value. LASTVALUE means that PID remains on same level as was before entering into deadband.

### Parameter no. 54 - PID deadband

Available config. parameters (data type is 1 Byte DEC):

- default value 5 (0,5 °C)
- 0-127 - 0.0 °C to 12.7 °C, step is 0,1°C

NOTE: This parameter defines the zone where PID is not active. If the temperature difference between actual and setpoint is bigger than PID deadband, then the PID will start to regulate the system, otherwise the PID is zero or fixed.

### Parameter no. 55 - Integral sampling time

Available config. parameters (data type is 1 Byte DEC):

- default value 5 (5s)
- 0-127 - 0s to 127s, step is 1s

NOTE: Parameter defines the time between samples. On each sample the controller capture difference between SP-act.

### Parameter no. 56 - P parameter

Available config. parameters (data type is 2 Byte DEC):

- default value 100
- 0 -1000 - P value, step is 1

### Parameter no. 57 - I parameter

Available config. parameters (data type is 2 Byte DEC):

- default value 1
- 0 - 1000 - I value, step is 1

### Parameter no. 58 - D parameter

Available config. parameters (data type is 2 Byte DEC):

- default value 1
- 0 - 1000 - D value, step is 1

### Parameter no. 59 - Thermostat mode

Available config. parameters (data type is 1 Byte DEC):

- default value 0
- 0 - Heat mode
- 1 - Cool mode

If parameter changed it is necessary to re-include module.

### Parameter no. 60 – Too low temperature limit

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

- Default value 50 (Too low temperature limit is 5.0°C)
- 1 - 1000 = 0.1°C to 100.0°C, step is 0.1°C.

- 1001...1150: -0.1°C to -15.0°C  
Too low temperature limit is used with Association Group 4.

**Parameter no. 61 – Too high temperature limit**

- Available config. parameters (data type is 2 Byte DEC):
- default value 700 (too high temperature limit is 70.0°C)
  - 1 - 1000 = 0.1°C - 100.0°C, step is 0.1°C. Too high temperature limit is used with Association Group 4.

**Parameter no. 63 – Output Switch selection**

Set value means the type of the device that is connected to the PWM output. The device type can be normally open (NO) or normally close (NC).

Available config. parameters (data type is 1 Byte DEC):

- default value 0
- 0 - When system is turned off the output is 0 V.
- 1 - When system is turned off the output is 230 V.

**Parameter no. 70 – Input 1 status on delay**

Available config. parameters (data type is 2 Byte DEC):

- default value 0
- 1 - 32000 seconds

If the value of parameter is different to 0, means that the influence of this input to heating or cooling will react after inserted time. This parameter has influence only when the window sensor functionality is selected by the parameter no. 11.

NOTE: Device status on UI change immediately

**Parameter no. 71 – Input 1 status off delay**

Available config. parameters (data type is 2 Byte DEC):

- default value 0
- 1 - 32000 seconds

If the value of parameter is different to 0, means that the influence of this input to heating or cooling will react after inserted time. This parameter has influence only when the window sensor functionality is selected by the parameter no. 11.

NOTE: Device status on UI change immediately

**Parameter no. 72 – Input 2 status on delay**

See parameter 70 (valid for I2 instead of I1)

This parameter has influence only when the condense sensor functionality is selected by the parameter no. 12.

**Parameter no. 73 – Input 2 status off delay**

See parameter 71 (valid for I2 instead of I1)

This parameter has influence only when the condense sensor functionality is selected by the parameter no. 12.

**Parameter no. 74 – Input 3 status on delay**

See parameter 70 (valid for I3 instead of I1)

This parameter has influence only when the flood sensor functionality is selected by the parameter no. 13.

**Parameter no. 75 – Input 3 status off delay**

See parameter 71 (valid for I3 instead of I1)

This parameter has influence only when the flood sensor functionality is selected by the parameter no. 13.

**Parameter no. 100 – Enable / Disable Endpoint I1 or select Notification Type and Event**

Enabling I1 means that Endpoint (I1) will be present on UI. Disabling it will result in hiding the endpoint according to the parameter set value. Additionally, a Notification Type and Event can be selected for the endpoint. Available

configuration parameters (data type is 1 Byte DEC):

Endpoint device type selection:

- notification sensor (1 - 6):

GENERIC\_TYPE\_SENSOR\_NOTIFICATION,

SPECIFIC\_TYPE\_NOTIFICATION\_SENSOR

default value 0

- 1 - Home Security; Motion Detection, unknown location.
- 2 - CO; Carbon Monoxide detected, unknown location.
- 3 - CO2; Carbon Dioxide detected, unknown location.
- 4 - Water Alarm; Water Leak detected, unknown location.
- 5 - Heat Alarm; Overheat detected, unknown location.
- 6 - Smoke Alarm; Smoke detected, unknown location.

0 - Endpoint, I1 disabled

sensor binary (9): GENERIC\_TYPE\_SENSOR\_BINARY,

SPECIFIC\_TYPE\_NOT\_USED

9 - Sensor binary

NOTE1: After parameter change, first exclude module (without setting parameters to default value) and then re include the module!

NOTE 2: When the parameter is set to value 9 the notifications are send for Home Security.

NOTE3: If "endpoint enabled" (value set to 1..9), parameter

11 must be set to "2" as "Window Sensor"!

**Parameter no. 101 – Enable / Disable Endpoint I2 or select Notification Type and Event**

See parameter 100 (valid for I2 instead of I1)

NOTE: If "endpoint enabled" (value set to 1..9), parameter 12 must be set to "2000" as "Condense Sensor"!

**Parameter no. 102 – Enable / Disable Endpoint I3 or select Notification Type and Event**

See parameter 100 (valid for I3 instead of I1)

NOTE: If "endpoint enabled" (value set to 1..9), parameter 13 must be set to "2" as "Flood Sensor"!

**Parameter no. 110 – Temperature sensor offset settings**

Set value result in adding or subtracting that value 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 config. parameters (data type is 1 Byte DEC):

- default value 5
- 0 – Reporting disabled
- 1- 127 = 0.1°C – 12.7°C, step is 0.1°C

**Parameter no. 121 – Digital temperature sensor / setpoint selector**

If digital temperature sensor is not connected, module can grab measured temperature from external secondary module. Available config. parameters (data type is 1 Byte DEC):

- default value 0
- 0 – internal digital temperature sensor is mounted, setpoint is set by controller
- 1 – (bit 0) temperature is grabbed from external always on sensor with sensor\_multilevel\_get sent by association 3
- 2 – (bit 1) temperature is grabbed from external battery powered room sensor declared in parameter 122
- 4 – (bit 2) setpoint is grabbed from external always on module with thermostat\_setpoint\_get sent by association 5
- 8 - (bit 3) setpoint is grabbed from external battery powered room sensor declared in parameter 122.
- 10 – (bit 1 and bit 3) temperature AND setpoint are grabbed from external battery powered room sensor declared in parameter 122

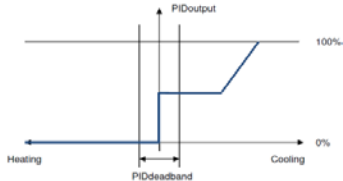
**Parameter no. 122 – Node ID of external battery powered room sensor**

If digital temperature sensor is not connected, module can grab measured temperature from external battery powered room sensor defined by this parameter.

Available config. parameters (data type is 1 Byte DEC):

- default value 0
- 0 – external battery powered room sensor not in function
- 1- 254 = Node ID of external battery powered room sensor

NOTE: Get sensor node\_id from controller and set parameter 122 immediately after sensor weak up (after button press on it etc.)



**Functionality**

Thermostat has 2 working mode, Off or Heat/Cool. Selection between Off and Heat/Cool is possible to select with I1 push button or from gateway. When the module is turned on it automatically regulate the temperate based on internal PWM logic and parameters settings.

When device is turned off, then it is working in antifreeze regime. The antifreeze regime turns on heating device when the temperature is lower of equal to the temperature set by parameter 45.

**Technical Specifications**

Power supply	110 - 230 VAC ±10% 50 or 60Hz**, 24-30VDC
Rated load current of AC output	0,85A / 230VAC
Rated load current of DC output	0,85A / 30VDC
Output circuit power of AC output (resistive load)*	200W (230VAC)
Output circuit power of DC output (resistive load)	21W (24VDC)
Power measurement accuracy	+/-2W
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)	48g (64g)
Electricity consumption	0,7W
For installation in boxes	Ø ≥ 60mm or 2M
Switching	MOSFET (Trailing edge)
Digital temperature sensor range	-50 ~ +125°C, resolution 0.1°C
Digital temperature sensor cable length	1000mm

Max Power Limit is automatically set by a software. If max power is exceeded for more than 30 seconds, the output is turned off up to the next restart of the module.

Z-Wave Device Class:

ZWAVEPLUS\_INFO\_REPORT\_ROLE\_TYPE\_SLAVE\_ALWAYS\_ON  
GENERIC\_TYPE\_THERMOSTAT  
SPECIFIC\_TYPE\_THERMOSTAT\_GENERAL\_V2

Z-Wave supported Command Classes

COMMAND\_CLASS\_ZWAVEPLUS\_INFO\_V2  
COMMAND\_CLASS\_VERSION\_V2  
COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC\_V2  
COMMAND\_CLASS\_DEVICE\_RESET\_LOCALLY  
COMMAND\_CLASS\_POWERLEVEL  
COMMAND\_CLASS\_BASIC  
COMMAND\_CLASS\_SWITCH\_ALL  
COMMAND\_CLASS\_SENSOR\_BINARY  
COMMAND\_CLASS\_THERMOSTAT\_MODE\_V2  
COMMAND\_CLASS\_THERMOSTAT\_SETPOINT\_V2  
COMMAND\_CLASS\_NOTIFICATION\_V5  
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\_V2  
COMMAND\_CLASS\_MARK  
COMMAND\_CLASS\_BASIC

Endpoint1

Device Class:

GENERIC\_TYPE\_THERMOSTAT  
SPECIFIC\_TYPE\_THERMOSTAT\_GENERAL\_V2

Command Classes:

COMMAND\_CLASS\_ZWAVEPLUS\_INFO\_V2  
COMMAND\_CLASS\_VERSION\_V2  
COMMAND\_CLASS\_BASIC\_V2  
COMMAND\_CLASS\_SWITCH\_ALL  
COMMAND\_CLASS\_THERMOSTAT\_MODE\_V2  
COMMAND\_CLASS\_THERMOSTAT\_SETPOINT\_V2  
COMMAND\_CLASS\_METER\_V4  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_MULTI\_CHANNEL\_ASSOCIATION\_V3  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO  
COMMAND\_CLASS\_MARK  
COMMAND\_CLASS\_BASIC

Endpoint 2 (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\_NOTIFICATION\_V5  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_MULTI\_CHANNEL\_ASSOCIATION\_V3  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO  
COMMAND\_CLASS\_MARK  
COMMAND\_CLASS\_BASIC\_V2

Endpoint 3 (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\_NOTIFICATION\_V5  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_MULTI\_CHANNEL\_ASSOCIATION\_V3  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO  
COMMAND\_CLASS\_MARK  
COMMAND\_CLASS\_BASIC\_V2

Endpoint 4 (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\_NOTIFICATION\_V5  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_MULTI\_CHANNEL\_ASSOCIATION\_V3  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO  
COMMAND\_CLASS\_MARK  
COMMAND\_CLASS\_BASIC\_V2

Endpoint 5 (SENSOR MULTILEVEL):

Device Class:

GENERIC\_TYPE\_SENSOR\_MULTILEVEL  
SPECIFIC\_TYPE\_ROUTING\_SENSOR\_MULTILEVEL

Command Classes:

COMMAND\_CLASS\_ZWAVEPLUS\_INFO\_V2  
COMMAND\_CLASS\_VERSION\_V2  
COMMAND\_CLASS\_SENSOR\_MULTILEVEL\_V7  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_MULTI\_CHANNEL\_ASSOCIATION\_V3  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO  
COMMAND\_CLASS\_BASIC

The basic command class supports the functions BASIC SET and BASIC GET. Through the function basic SET is possible to set the mode of the module. Basic SET can send the values 0xff which means Heat/Cool and 0x00 which means Off. Through the function basic GET is possible to read the mode of the module. The module returns 0xff which means Heat/Cool or 0x00 which means Off.

COMMAND\_CLASS\_SENSOR\_MULTILEVEL Flush

PWM thermostat supports reading of actual temperature which is 2 bytes long, scale is °C and its precision is 1 (it means 0,1°C).

COMMAND\_CLASS\_THERMOSTAT\_MODE

Flush PWM thermostat supports the following modes:

- Mode Off

- Mode Heat/Cool

COMMAND\_CLASS\_THERMOSTAT\_SETPOINT

Flush PWM thermostat supports temperature set point, which is 2 bytes long, scale is °C and its precision is 1 (it means 0,1°C).

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.

Temperature used in all functions is a temperature average.

**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 S4 (SW version S4 is part of P/N)!

Example: P/N: ZMNHLdX HXS4PX



**Qubino**

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