BE NEXT

Quick start: **Thermostat**

Technical specifications

Normal operating voltage	230V / 50Hz
Frequency range	868.42 MHz
Wireless range	Up to 30 meters in house
Wireless range	Up to 150 meters in a mesh network

Basic operations

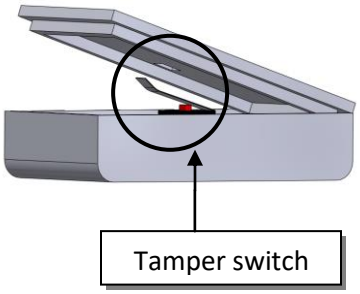
- A Z-Wave thermostat to control boilers, heaters or IR Panels.

How it operates

Controls the associated receiver with ON and OFF messages. Based on the configured thermostat setpoint.

Mounting

1. Before mount, the *Thermostat* should be included into a Z-Wave network and associated.
2. Use a flat screwdriver at the inlets on the sides to gently unlock the back cover.
3. Use the supplied screws to mount the cover with the designated holes.
4. Place two AAA 1,5V batteries into the device.
5. Place the *Thermostat* onto the back cover.
6. Make sure to close it nicely on all sides.
7. Mounting is completed when the led blinks for a full second.



Add or Remove into/from Z-Wave network [1]

1. Press and hold the tamper button for two seconds (indication LED blinks shortly) and release to start the add/remove routine.
    a. The indication LED will start blinking twice when the thermostat starts the add routine.
    b. The indication LED will blink 3 times when the thermostat starts the remove routine.
2. When classic inclusion failed, the product will start Network Wide Inclusion automatically.

[1] Make sure your Z-Wave controller is in the correct operation mode (add or remove).

BE NEXT

Technical Manual: **Thermostat**

Caution:

- **This device is using a radio signal that passes through walls, windows and doors. The range is strongly influenced by local conditions such as large metal objects, house wiring, concrete, furniture, refrigerators, microwaves and similar items. On average, the indoor range is approximately 30 meters.**
- **Do not expose this product to excessive heat or moisture.**
- **Prevent long term exposure to direct sunlight.**
- **Do not attempt to repair this product. If the product is damaged or if you are in doubt about the proper operation, take the product back to the place of purchase.**
- **Do not clean the product with any liquid.**
- **Indoor use only.**

Normal operating voltage	2x AAA 1,5V batteries
Battery lifetime	Approximately 2 years (normal usage)
Frequency range	868.42 MHz
Wireless range	Min. 50 meters in line of sight Min. 150 meters with good mesh network (max 4 hops)
Absolute max. temperature	-15°C to +85°C
Storage temperature	-5°C to +65°C
Storage humidity	10% to 70%
Operating temperature	0°C to 50°C
Operating humidity	10% to 80%

Technical details

Product dimensions (length x width x height)

58 x 33 x 17 mm

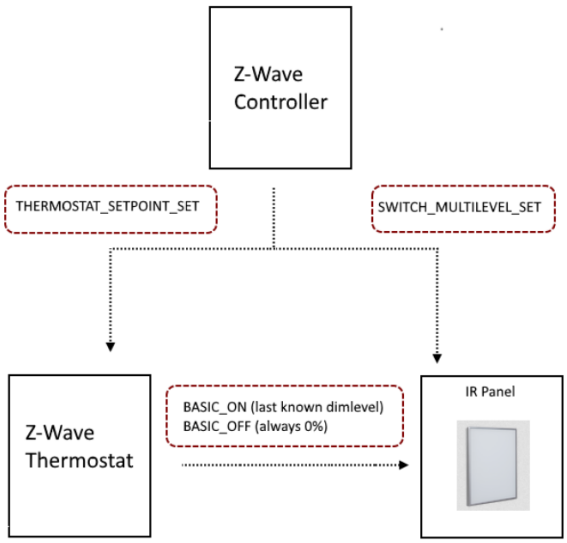
Indicators

The indicator light gives various statuses of the device as follow:

1. Ready for learn mode: red indicator light blinks every second
2. Learn in progress (add): red indicator light 2 times every second
3. Learn in progress (remove): red indicator light 3 times every 1.5 second
4. Learn mode success: red indicator light is on for one second

Z-Wave thermostat and Boiler (IR Panel, multilevel)

The Z-Wave thermostat can control a boiler or IR Panel. A Z-Wave controller can adjust the thermostat setpoint of the room where the IR Panel is placed. The thermostat then can control the IR Panel with a BASIC_ON or BASIC_OFF command.



Note: In above diagram the BeNext thermostat can be used as the Z-Wave Thermostat

Supporting Command Classes:

Basic type: BASIC_TYPE_ROUTING_SLAVE
Generic type: GENERIC_TYPE_SENSOR_BINARY
Specific type: SPECIFIC_TYPE_NOT_USED
Listening: False, Z-Wave Lib: 4.54

class: 0x70 COMMAND_CLASS_CONFIGURATION
class: 0x71 COMMAND_CLASS_ALARM
class: 0x72 COMMAND_CLASS_MANUFACTURER_SPECIFIC
class: 0x80 COMMAND_CLASS_BATTERY
class: 0x84 COMMAND_CLASS_WAKE_UP
class: 0x85 COMMAND_CLASS_ASSOCIATION
class: 0x86 COMMAND_CLASS_VERSION
class: 0x31 COMMAND_CLASS_SENSOR_MULTILEVEL
class: 0x43 COMMAND_CLASS_THERMOSTAT_SETPOINT
class: 0xEF COMMAND_CLASS_MARK
class: 0x20 COMMAND_CLASS_BASIC

Routing slave
This Z-Wave product will be used as slave. Slave nodes are nodes in a Z-Wave network that receive commands and perform actions based on the command. A routing slave can route Z-Wave messages to other nodes in the network.

Not listening routing slave
This Z-Wave product will be used as routing slave. Slave nodes are nodes in a Z-Wave network that receive commands and perform actions based on the command. This device will always be in sleep mode because it works on batteries. In sleep mode the device is not active listening, the device will wake up according to the wakeup command class.

Include initiator
The include initiator is used when Primary and Inclusion Controllers include nodes into the network. When both the include initiator have been activated simultaneously the new node will be included to the network (if the node was not included previously).

Exclude initiator
The exclude initiator is used by Primary Controllers to exclude nodes from the network. When the exclude initiator and a slave initiator are activated simultaneously, it will result in the slave being excluded from the network (and reset to Node ID zero). Even if the slave was not part of the network it will still be reset by this action.

Z-Wave compatibility
Because this is a Z-Wave device, it means it can co-operate with other Z-Wave devices of other manufacturers. It can co-exist in a Z-Wave network existing with product from other manufacturers.

Hops & retries
The Z-Wave range has a range of up to 40 meters in line of sight. This signal is not limited to the 40 meter range due to routing the Z-Wave message to other nodes in the network. This way the range of the Z-Wave network can be expanded to 160 meters indoors (limit of 4 hops).

COMMAND_CLASS_BASIC

When the room needs to heat the receiver a basic set frame with the value 255 is sent to the associated nodes.

When the room don't needs to heat the receiver a basic set frame with the value 0 is sent to the associated nodes.

COMMAND_CLASS_VERSION

This command class is used to obtain information about the *Thermostat*. The Z-Wave library type, the Z-Wave protocol version and the application version will be reported.

COMMAND_CLASS_MANUFACTURER_SPECIFIC

This will report information about the manufacturer. This product will contain the manufacturer ID of *BeNext*. Manufacturer ID of *BeNext* is 138, the ID of this product is 59.

class: 0x70 COMMAND_CLASS_CONFIGURATION

Configure parameters:

0. **not used**
1. **Set to default**

Description:	Set all configuration values to default values (factory settings). Read more in chapter Configuration Reset.
Size:	1 byte*
Param1:	If 0xFF then set to default
Param2,3,4:	Not used

2. **Temperature auto report settings**

Description:	The difference between the measured temperature before send unsolicited.
Default:	0x05 (0,5 C)
Size:	1 byte*
Param1:	value * 0.1 C .

3. **Setpoint negative offset**

Description:	Expand the setpoint band to prevent to many switching Example: configval = 5; setpoint is 21 C the actual set value is 20,5 C (don't send ON or OFF between 20,5 C and 21 C)
Default:	5 (0.5 C)
Size:	1 byte*
Param1:	value * 0.1 C

4. **Measure interval**

Description:	The interval the chip is woken up to handle its state machine Note: Advise not change this parameter to prevent unwanted battery drain.
Default:	240 (seconds)
Size:	1 byte*
Param1:	value in seconds

5. **Unsolicited Battery report**

Description:	Configure to send an unsolicited report at an x interval.
Default:	0x0168 (24 h)
Size:	2 byte*
Param1:	Value * measure interval (parameter 4)
Param2,3:	Not used

6. **The temperature offset**

Description:	An offset for the temperature.
Default:	0x00
Size:	2 bytes*
Param1,2:	A signed integer to determine the offset off the temperature.
Param3,4:	Not used

7. **Resend timeout**

Description:	Timeout to resend the ON or OFF messages Note: Advise not change this parameter to prevent unwanted battery drain.
Default:	0x1E (2 h)
Size:	1 byte*
Param 1:	Value * measure interval (parameter 4)
Param 2,3,4:	Not used

8. **Lock mode**

Description:	Lock the control mechanism of the associated node (no ON or OFF message are sent)
Default:	0x00
Size:	1 byte*
Param 1:	Value 0x00: Disabled Value 0x01 - 0xFF: Enabled
Param 2,3,4:	Not used

* If a size is other then given size the frame is ignored totally so configuration values are **not** changed.

COMMAND_CLASS_THERMOSTAT_SETPOINT

The thermostat setpoint command class is to activate a temperature

The Thermostat supports two set point types:

- 0x01: Heating
- 0x02: Cooling
- 0x0B: Energy Save heating

Other set point types will be ignored by application.

COMMAND_CLASS_SENSOR_MULTILEVEL_V5

The Sensor Multilevel command class is used to retrieve a sensor report from the *IR Panel*.
The reported values is the measured temperature inside the housing

Because this is version 6, it is necessary to add the sensor type to the SENSOR_MULTILEVEL_GET frame.

Supported sensor types:

- Temperature (temperature)

Note that all other types are ignored by the application.

Configuration reset

The IR Panel supports a configuration reset function. Configuration reset means:

- All configuration values are defaulted
- Wake up interval is defaulted
- Entry Control configuration are defaulted
- Indicators values are defaulted

This function can be activated by sending a configuration set frame:

CONFIGURATION_SET
Parameter: 0x01
Size: 0x01 (can't be different from 1)
Value: 0xFF (can be any value except for 0x55 or 0xAA)

When the value of configuration value is requested 2 possible values can be returned.

CONFIGURATION_REPORT
Parameter: 0x01
Value 0x55: Configuration settings of the device are altered.
The device will report this even if the configuration parameters are changed back to the default value.
Value 0xAA: Configuration of the device is untouched.
Note that this value will not change to 0x55 upon modifying the wake up interval and that re-setting the value to 0xAA will always reset the wake up interval.

Back to factory settings

This product has an option to reset its factory settings. This can be done manually without the need of a Z-Wave controller. When the factory settings are set the following will apply:

- The product will be removed from the Z-Wave network.
- All associations will be cleared.
- All user codes will be cleared.
- All configurations will be restored to default.

To reset to factory settings please follow these steps"

1. Press the button for 2 seconds, release the button to start the remove routine (indication LED will blink 3 times every second).
2. During the remove routine press enter button 4 times within 1,5 seconds to reset the product.
3. If 'back to factory settings' was successful the indication LED will go in for 1 full second on the end of the remove routine.

4. A DEVICE_RESET_LOCALLY_NOTIFICATION is sent to the nodes associated in the lifeline group.

NOTE: Please use this procedure only when the network primary controller is missing or otherwise inoperable

FAQ

Q:
A: