Quick start: **Alarm Sound EU**

Technical specifications

Normal operating voltage	230V/50Hz
Frequency range	868.42 MHz
Wireless range	Min. 150 meters in a mesh network
Max. buzzer-sound	Approximately 100dBa at 60cm. distance
Battery types:	Gold capacitor for 60 sec. backup

Basic operations

- The *Alarm Sound* can be configured to the users own preferences.
- The *Alarm Sound* can be used in alarm systems, using its buzzer to generate sounds and/or notifying the user using various light patterns.
- The *Alarm Sound* can also be used to generate other sounds or notifications, for instance as a doorbell.
- The *Alarm Sound* has a button that can either be used as a panic button or to remote control a device.
- The *Alarm Sound* will send an alarm message when it gets unplugged.

Mounting

- Place the *Alarm Sound* into an outlet socket. After one hour, the Alarm Sound is fully operational.

Include or exclude in Z-Wave network [1]

1. Press and hold the push button until the indicator light is blinking than release the button to start the inclusion or exclusion process.
2. When classic inclusion failed the product will start Network Wide Inclusion automatically.

Manual control

1. Press and release the push button of the device, the indicator light will turn on. When another device is associated to the *Alarm Sound*, it will send a message to this device. This way, the *Alarm Sound* can be used to remote control another device or can be used as a panic button.
2. If used to remote control another device:
   Press and release the push button again to turn the device off.
3. If the alarm (or light notification) is turned on, you can press and release the push button to turn it off.

Remote control

Z-Wave devices can remote control the *Alarm Sound* in the following ways:

- The sound and light patterns can be turned on/off by Z-Wave devices.
- The sound and light patterns can be configured by Z-Wave devices.

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

BE NEXT

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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.**

Technical details

Normal operating voltage	230V/50Hz (min 210Vac, max 250Vac)
Frequency range	868.42 MHz
Wireless range	Approximately 100 meters in line of sight Min. 150 meters with a good mesh network (max. 4 hops)
Max. buzzer-sound	> 100dBa at 60 centimeter distance
Battery types	Gold capacitor for 60 seconds backup
Storage temperature	-5°C to +65°C
Storage humidity	10% to 70%
Operating temperature	0°C to 50°C
Operating humidity	30% to 80%

Product dimensions (length x width x height)

Alarm Sound = 125 x 60 x 50 mm

This Schuko connector fits in French and German sockets.

Indication mode

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

1. Ready for learn mode: indicator light blinks every second
2. Learn in progress (add): indicator light 2 times every second
3. Learn in progress (remove): indicator light 3 times every 1.5 second
4. Learn mode success: indicator light is on for one second
5. RF message send failed indicator light blinks 6 times rapidly

Supporting command classes

Basic type: BASIC_TYPE_ROUTING_SLAVE
Generic type: GENERIC_TYPE_SWITCH_BINARY
Specific type: SPECIFIC_TYPE_NOT_USED
Listening: TRUE, Z-Wave Lib: 4.54

class: 0x25 COMMAND_CLASS_SWITCH_BINARY
class: 0x70 COMMAND_CLASS_CONFIGURATION_V2
class: 0x71 COMMAND_CLASS_ALARM
class: 0x72 COMMAND_CLASS_MANUFACTURER_SPECIFIC
class: 0x73 COMMAND_CLASS_POWERLEVEL
class: 0x85 COMMAND_CLASS_ASSOCIATION
class: 0x86 COMMAND_CLASS_VERSION
class: 0x8F COMMAND_CLASS_MULTI_CMD

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. This device is always awake and does not go to sleep mode because it is an AC powered device.

This device can act as a wireless repeater to forward commands for another device in the Z-Wave network to expand the range of the network. This function works for every Z-Wave device from any manufacturer when included into the same Z-Wave network.

Unlike a normal slave a routing slave can store a number of static routes which he uses to send a routed RF frame to another node.

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 30 meters in line of sight. This signal is not limited to the 30 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 150 meters indoors (limit of 4 hops).

Class 0x20 COMMAND_CLASS_BASIC
The Basic command class has both a supporting as controlling role. In the supporting role it is mapped to the Switch Binary command class. In the controlling role it can be used to remote control other devices (using the push button), for instance a Power Switch.

class: 0x25 COMMAND_CLASS_SWITCH_BINARY
The Switch Binary command class can be used to turn the *Alarm Sound* on or off.

Value:
- 0x00: OFF
- 0x01 – 0x63 or 0xFF: ON

class: 0x86 COMMAND_CLASS_VERSION
This command class is used to obtain information about the *Alarm Sound*. The Z-Wave library type, the Z-Wave protocol version and the application version will be reported.

class: 0x72 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 5.

class: 0x85 COMMAND_CLASS_ASSOCIATION
The Association command class is used to associate other devices with the *Alarm Sound*. The devices that are associated can be controlled on application level.

→ *Number of groupings:* **2**
→ *Maximum supported nodes per group:* **1**

The *Alarm Sound* supports two association groups. Each of these association groups can be associated to one other device.

Association group 1:
The Z-Wave device in association group 1 is remote controlled using the push button of the *Alarm Sound*. The indicator light represents the state of the remote controlled device during normal operation. If the *Alarm Sound* received a Switch Binary Report or Basic Report from the Z-Wave device that is in association group 1, it will update the state of the indicator light.

Association group 2:
The *Alarm Sound* will actively report its state to the Z-Wave device in association group 2.
- In case it is unplugged, it will send an Alarm Report (code 3, triggered) to this device.
- When the AlarmSound is plugged in, it will send an Alarm Report (code 3, off) to this device.
- When the alarm sound/lights are turned off by pressing the push button (or because it was configured to stop after a specific time), it will send a Switch Binary Report (off) to this device.
- When the device is unplugged and starts the default ‘power offline’ sound it will send a Switch Binary Report (on). See also the chapter ‘Power Offline’.

→ *Note that when the Alarm Sound is plugged into mains power, it will indicate whether the device in association group 2 can be reached. If the indicator light lights up for 1 second, the AlarmSound is fully operational. If it blinks 6 times, the device could not be reached. If it does not light up at all, there is not device associated with group 2.*

class: 0x70 COMMAND_CLASS_CONFIGURATION_V2

This command class is used to change to configuration of the device.

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. **Destination routine enabled**

Description:	Enables an internal routine that periodically checks the Z-Wave device in association group 2 by sending a test message. If transmission fails, the *Alarm Sound* will notify the user with a sound. (See also configuration parameter 3, 4 and 9).
Default:	0xFF (enabled)
Size:	1 byte*
Param1:	If 0x00 routine is disabled If 0x01 – 0xFF routine is enabled
Param2,3,4	Not used

3. **Destination routine success time**

Description:	Configure the time that the Alarm Sound sends a new frame when previous frame was send successful.
Default:	0x3C = 60 (* 6 *60) (6 hours)
Size:	1 byte*
Param1:	t(s) = param1 * 6 *60
Param2,3,4	Not used

4. **Destination routine failed time**

Description:	Configure the time that the Alarm Sound sends a new frame when previous frame was send **not** successful.
Default:	0xF0 = 240 (*60). (4 hours)
Size:	1 byte*
Param1:	t(s) = param1 *60
Param2,3,4	Not used

5. ~~**Temperature calibration offset (end cfg param 6)**~~

7. Select index sound/light mode

Description:	The index of the sound mode when a switch binary/basic set frame is received.
Default:	0x01
Size:	1 byte*
Param1:	0 – 6 0 to disable, 1-6 to select sound/light mode number. If higher then 5 then the value will be returned but application will handle it as index 1.

8. Power offline sound/light mode

Description:	The index of the sound mode the *Alarm Sound* will start when it is unplugged (see also chapter 'Power Offline').
Default:	0x06
Size:	1 byte*
Param1:	0 – 6 0: disable 1-6: select sound/light mode number If higher then 5 then the value will be returned but application will handle it as index 1.

9. Error (destination routine failed) sound/light mode

Description:	The index of the sound mode the *Alarm Sound* will play when it is unable to reach the device in association group 2.
Default:	0x05
Size:	1 byte*
Param1:	0 – 6 0: disable 1- select sound/light mode number If higher then 5 then the value will be returned but application will handle it as index 1.

10. Sound/light Index 1 (end cfg param 27)

Description:	Parameters 10 until 27 are the values to configure the sound and light that are played when index 1 is selected.
Default:	Alarm sound
Size:	18 bytes (18 configuration parameter)*

28. Sound/Light Index 2 (end cfg param 45)

Description:	Parameters 28 until 45 are the values to configure the sound and light that are played when index 2 is selected.
Default:	Alarm sound
Size:	18 bytes (18 configuration parameter)*

46. Sound/Light Index 3 (end cfg param 63)

Description:	Parameters 46 until 63 are the values to configure the sound and light that are played when index 3 is selected.
Default:	Alarm sound
Size:	18 bytes (18 configuration parameter)*

64. Sound/Light Index 4 (end cfg param 81)

Description:	Parameters 64 until 81 are the values to configure the sound and light that are played when index 4 is selected
Default:	Alarm sound
Size:	18 bytes (18 configuration parameter)*

82. Sound/Light Index 5 (end cfg param 99)

Description:	Parameters 82 until 99 are the values to configure the sound and light that are played when index 5 is selected
Default:	Error
Size:	18 bytes (18 configuration parameter)*

100. Sound/Light Index 6 (end cfg param 117)

Description:	Parameters 100 until 117 are the values to configure the sound and light that are played when index 6 is selected
Default:	Power offline
Size:	18 bytes (18 configuration parameter)*

* If a size is other then given size the frame is ignored completely. In this case configuration values are **not** changed.

Configure a sound / light mode

Every sound light mode has 18 bytes, see below tables what every byte means, every value is displayed in hex.

Alarm configuration

Byte	Length	Description	Default values
00 -> 07	BYTE[8]	Sound configuration	63 03 E8 A1 01 C8 00 1A
08 -> 0E	BYTE[7]	Lights configuration	63 03 E8 14 FF 00 10
0F -> 11	BYTE[3]	Sequence configuration	FF 42 00

Sound Configuration

Byte	Description
00	Volume
01	Duration (MSB)
02	Duration (LSB)
03	Max/min Frequency
04	Freq. direction/time
05	Sound time
06	Interval time
07	Repeats / Pause time

Light configuration

Byte	Description
00	Intensity
01	Duration (MSB)
02	Duration (LSB)
03	Time / LED
04	Light time
05	Interval time
06	Repeats / Pause time

Sequence configuration

Byte	Description
00	Sequence repeats
01	Steps configuration
02	Pause time

Steps configuration bits

7	6	5	4	3	2	1	0
Reserved	Step 1: Sound on	Step 1: Leds on	Step 1: Pause on	Reserved	Step 2: Sound on	Step 2: Leds on	Step 2: Pause on

class: 0x73 COMMAND_CLASS_POWERLEVEL

The Powerlevel command class defines the RF transmitting power. This command is used to test the connectivity of a network. The Command makes it possible for supporting controllers to SET/GET the RF transmitting power level of a node and test specific links between nodes.

class: 0x71 COMMAND_CLASS_ALARM

This command class is used to identify the state of the tamper alarm. The device will send an unsolicited report to the controller if the status is changed, the value 0x00 will indicate that everything is ok. The value 0xFF will indicate a tamper alarm. In the *Alarm Sound* a temper alarm means that the device was unplugged. Unsolicited Alarm Report Commands will be transmitted to the Z-Wave device in the second association group.

→ *The type (code) of the temper alarm is 3.*

Every other alarm type that is requested will be ignored by application.

class: 0x8F COMMAND_CLASS_MULTI_CMD

With the multi cmd class it is possible to request multiple values with one frame. If something is requested in a multi command , the report(s) are also in a multi cmd frame.

Configuration reset

The Alarm Sound supports a configuration resets function. Configuration reset means:

- All configuration values are defaulted

→ *Note that after a configuration reset, the device will still be included in the Z-Wave network.*

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)

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

CONFIGURATION_REPORT
Parameter: 0x01
Value 0x55: Device doesn't have all its factory settings anymore.
Even when a configuration parameter is changed back to the default value
Value 0xAA: Devices still has all its factory settings.

Power offline

The *Alarm Sound* has a small rechargeable battery that will be used when the device is no longer connected to mains power. This battery will automatically be charged during normal operation. Note that it will take at least one hour to fully charge this internal battery. If this battery is not fully charged, the routine described below might malfunction.

Once the *Alarm Sound* is unplugged, the following routine will be started:

1. A 4 second timer is started.
2. The *AlarmSound* tries to send an Alarm Report (code 3) message to the Z-Wave device in association group 2. If this fails, it will keep retrying every 10 seconds until the device is reached.
3. If another device starts a sound/light mode (using Configuration Set and Switch Binary Set or Basic Set), the timer is stopped and the mode is started.
4. If this is not the case and the timer expires, the *Alarm Sound* will start the default 'power offline' sound as defined in configuration parameter 8.
5. If the device in association group 2 was reached, the *Alarm Sound* will also send a Switch Binary Report to the device in the association group, indicating the alarm was turned on.

Note:

- You can press the push button to turn off the alarm.
- When plugging the *Alarm Sound* back in, it will recognize this within a few seconds. The volume of the sound might be increased temporary. After this, the alarm is turned off and an Alarm Report (code 3) message is send to the device in association group 2, disabling the alarm.
- When the device is already in an alarm mode and it is unplugged, the Alarm Report message is send, but the alarm mode will not change.
- The Alarm Sound will not work for more than 30 to 60 seconds without mains power. The main purpose of the battery is making it possible to send the tamper alarm message to the device in association group 2.

Troubleshooting

Frequently Asked Questions

Q: I can't have my *Alarm Sound* included into my Z-Wave network, what am I doing wrong?

A: **1**. Is the controller ready to include any device into the Z-Wave network? If the controller is not in Include or exclude mode, the *Alarm Sound* cannot be included or excluded.
2. The *Alarm Sound* is already included into a Z-Wave network. Exclude the switch and try to include it again.

Q: Why does the indicator light not work?

A: **1**. Check if the *Alarm Sound* is fully plugged into a socket. The indicator light will not work if there is no power supplied to the *Alarm Sound*.

Q: When I take my *Alarm Sound* out of the socket, the LED's will not go through their routine, and there is no sound.

A: **1.** It takes up to 4 seconds before the 'power offline' mode is started.
2. The mode is actively being disabled by another device remote-controlling the *Alarm Sound*.
3. The gold capacitor used for a backup battery in the *Alarm Sound* might be empty. The backup battery must be charged for 1 hour before working correctly.
4. The led routine is changed by the user and no led will be activated during this mode, you can configure other led routines by reading the configuration set command class. Or use MyBeNext to help you with that.