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Quick start: **Remote Controller EU**

Technical specs

Normal operating voltage	2x AAA 1,5V batteries
Frequency range	868.42 MHz
Wireless Range	Up to 30 meters in line of sight

Basic operations

- Switch lifestyles
- Activate scences
- Easy control your lights or curtains

How it operates

The *Remote Control* has 7 buttons.
If 1 of the 7 buttons is pressed a configuration Z-Wave frame is sent to a associated node with the corresponding value.

Use

The *Remote Control* can be used to activate a scene or lifestyle.

Include into a Z-Wave network [1]

1. Press and hold the *Button 5 for* 2 seconds and release to start the exclude process.
2. When classic inclusion failed, the product will start Network Wide Inclusion automatically.

Exclude into a Z-Wave network

1. Press and hold the *Button 5* for 1 seconds and release to start the exclude process.
2. Make sure the *Remote Controller* is in direct range of the controller!

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

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Technical Manual: **Remote Controller EU**

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	2x AAA 1,5V batteries From 2,3Vdc to 4,0Vdc do not use rechargeable batteries
Frequency range	868.42 MHz
Wireless range	Approx. 100 meters in line of sight. Min 150 meters with good mesh network (max 4 hops).
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)

Remote Controller is 125 x 40 x 20 mm

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. Tamper released   indicator light blinks 6 times rapidly.
6. Mounting successful   indicator light is on for 1 second.
7. RF message send failed   indicator light blinks 6 times rapidly

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Supporting Command Classes:

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

COMMAND_CLASS_ASSOCIATION
COMMAND_CLASS_BATTERY
COMMAND_CLASS_WAKE_UP
COMMAND_CLASS_VERSION
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_MARK,
COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_BASIC

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 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 supporting role of the basic command class is mapped to the switch binary command class.

class: 0x86 COMMAND_CLASS_VERSION

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This Command Class is used to obtain information about the *Remote Controller*. 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 20.

class: 0x70 COMMAND_CLASS_CONFIGURATION

Configure parameters:

0. **not used**
1. **Set to default**
   Description: Set all config 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. **Button 1 code**
   Description: The code that is sent with the CONFIGURATION_SET frame when
                           button 1 is pressed
   Default: 0x01

   Size: 1 byte*
   Param1:   numeric value 0 - 255

3. **Button 2 code**
   Description: The code that is sent with the CONFIGURATION_SET frame when
                           button 2 is pressed
   Default: 0x02

   Size: 1 byte*
   Param1:   numeric value 0 – 255

4. **Button 3 code**
   Description: The code that is sent with the CONFIGURATION_SET frame when
                           button 3 is pressed
   Default: 0x03

   Size: 1 byte*
   Param1:   numeric value 0 – 255

5. **Button 4 code**
   Description: The code that is sent with the CONFIGURATION_SET frame when
                           button 4 is pressed
   Default: 0x04

   Size: 1 byte*
   Param1:   numeric value 0 - 255
6. **Button 5 code**

Description: The code that is sent with the CONFIGURATION_SET frame when button 5 is pressed

Default: 0x05

Size: 1 byte*
Param1: numeric value 0 – 255

7. **Button 6 code**

Description: The code that is sent with the CONFIGURATION_SET frame when button 6 is pressed

Default: 0x06

Size: 1 byte*
Param1: numeric value 0 - 255

8. **Button 7 code**

Description: The code that is sent with the CONFIGURATION_SET frame when button 7 is pressed

Default: 0x07

Size: 1 byte*
Param1: numeric value 0 - 255

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

class: 0x85 COMMAND_CLASS_ASSOCIATION

The Association Command Class is used to associate other devices with the *Remote Controller*. The devices that are associated can be controlled on application level.

The *Remote Controller* can be associated into a grouping. If so, the *Remote Controller* can control other Z-Wave device (does not have to be a controller).

The *Remote Controller* has 1 association group.

Group 1
Maximum supported nodes: 8

All manual codes are sent to the node(s) in this association group.

Class: 0x80 COMMAND_CLASS_BATTERY

This class is used to request and report battery levels for a given device.
When battery level is lower then 20% the Remote Controller will send a battery warning (value 255) after every wake up notification. A battery get will report the actual value even if below 20 %.

An unsolicited (without receiving a BATTERY_GET) BATTERY_REPORT is sent when the DoorSensor has measured that the battery level has dropped.

Note that the following points apply for the unsolicited BATTERY_REPORT
- When new batteries applied a report is sent with the current value.

- The report will always be lower then the previous sent value.
- The battery level in the report is maximum 2% lower then the previous sent value.

class: 0x84 COMMAND_CLASS_WAKE_UP

The Wake Up Command Class is used at battery-operated devices. This class allows the *Remote Controller* to wake up occasionally to notify others devices, that the *Remote Controller* is ready to receive commands. After receiving the commands the *Remote Controller* will go into sleep mode again. The wake up interval can be set using the WAKE_UP_INTERVAL_SET command.

The default value is 0x15180 = 86400 sec = 24 hour
The default node is 0xFF = 255 (broadcast)

It is possible to send a **wake up notification** on user interaction. To do this press and hold the Remote Controller for 18 seconds. Ignore the blinking of the led and keep the button pressed for at least 18 seconds.

When the wake up time is set to 0 the **wake up notification** is never send periodically, only on user interaction.

Configuration Reset

The Remote Controller Supports a configuration resets function. Configuration reset means
- All configuration 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:   Device doesn't have all his configuration settings anymore.
                Even when a configuration parameter is changed back to the default value
Value 0xAA: Devices still has all his factory settings.
                This are only configuration parameters, wake up interval can be changed.

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Frequently Asked Questions

Q: I can't have my *Remote Controller* 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 *Remote Controller* will not be included or excluded.
           2. The *Remote Controller* is already included in a Z-Wave network (check your led feedback!). Exclude the *Remote Controller* and try again.

Q: I have configured a value but when I request it, it is not changed?
A: It is mandatory that the correct size is used while configure a parameter; go to the documentation about the configuration command class to check if the right size is used during configuration. If the wrong size is used the frame is ignored totally.

Q: I have configured a new value and when I request it the correct value is returned but the behavior is still the same?
A: Some configuration parameters have limits of what they can do, go to the documentation about configuration to check if the value of the configured parameter is out off limit.

Q: how to force a wakeup notification?
A: keep the pushbutton pressed for more than 18 seconds.