

Z-Wave.Me Key Chain Controller

ZME_KFOB

Firmware Version 1.0, Cert-Id: ZC08-12070010

1 What is Z-Wave?

This device is equipped with wireless communication that complies to the Z-Wave standard. Z-Wave is the **international standard for wireless communication in smart homes and buildings**. It used the frequency of **868/869Mhz** to realize a very stable and secure communication. Each message is reconfirmed (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range for the sender.

2 General Product Description

The Z-Wave.Me Key Fob is a Z-Wave device that can both control other Z-Wave devices and activate predefined scenes in an IP gateway. It can be included in a Z-Wave network and **work with other certified products** regardless of their brand or origin. Although it is controlling other devices the **KFOB can't act as Z-Wave network controller** (primary or secondary) and **will always need a Z-Wave network controller** to be included into a Z-Wave network.

The Key Fob can be used in five different modes that are defined by configuration parameters.

1) Direct Control of associated Devices with single Buttons association group 1 is controlled by button 1, group 2 by button 2 etc.: Single Click = On, Double Click = Off, Hold = Dim up, Click and Hold = Dim down

2) Direct Control of associated Devices with two Buttons association group 1 is controlled by the two buttons #1 and #3, association group 2 is controlled by the two buttons #2 and #4. Click of the larger button = On, Click of the smaller button = off, hold the larger buttons = Dim up, Hold the smaller button = Dim down

3) Scene Activation in IP Gateway Clicking a button activates a corresponding scene in a IP gateway if the IP gateway is configured accordingly.

4) Direct Activation of preconfigured Scenes Associated devices in an association are controlled by individual commands defines by Z-Wave command class 'Scene Controller Configuration'. This function enhances mode 1

5) Direct Control of Devices in proximity pushing button 1 or 2 turns on a device in

short distance (50...100 cm) from the fob, button 3 or 4 turns of a device in proximity

In scene control mode six different scene commands can be activated on a group. The number of the button (1...4) defined the upper digit of the scene number the following commands define the lower digit of the scene number:

- 1 = On
- 2 = Off
- 3 = Dim Up Start
- 4 = Dim Down Stop
- 5 = Dim Up Start
- 6 = Dim Down Stop

Example: Clicking button 1 activates either scene No 11 or 12 (10 = button 1 upper digit plus either On or Off command)

3 Technical data

- Frequency:
 - 868.42 MHz for Europe,
 - 869 MHz for Russia
- Z-Wave Device Type: Routing Slave
- Battery Type: 1 * CR2032, to change, open the enclosure with the four screws
- Dimensions: 44 x 30 x 10 mm
- Weight: 30 gr. (with battery)
- Association Groups: 4 for 14 target devices
- Operating temperature: 0°C to +40°C

4 Wireless Functions

4.1 Device Management and Setup

The device can be operated in two different modes: the operation mode and the management mode:

- **Operation Mode:** This is the mode where the device is controlling other devices.
- **Management Mode:** The device is turned into the management mode by pushing all four buttons for 5 sec. A blinking LED indicates the management mode. In the management mode buttons of the device have different functions. If no further action is performed the device will turn back to the normal mode after 10 sec. Any management action terminates the management mode as well.

In management mode the following actions can be performed:

Button 1 - **Network Wide Inclusion:** The device can be included into a Z-Wave Network from any physical location in the network. This requires a network controller supporting Network Wide Inclusions (controller based on SDK 4.5 and up) This mode lasts for 20 seconds and stops automatically. Any button press Stops the mode as well

Button 2 - **Send Node Information Frame** and Wake up Notification.

Button 3 - **Learn Mode:** The device is included or excluded from a controller in direct wireless range. Any button press Stops the mode. Performing an exclusion of the device from a network resets the device into its factory default.

Button 4 - **Enter into Association mode** to assign target devices to one of the four association groups.

4.2 Z-Wave Associations

To control a Z-Wave device from the Key Fob the node ID of this devices needs to be assigned to one of the four association groups. This is a three-step process

Turn the Key Fob into association mode by pushing all four buttons of the fob for 5 sec. Once in the management mode press button No 4 within 10 sec. (LED is blinking green when management mode is reached).

Within 10 sec. push the button you like the Z-Wave actuator to be assigned with. After 10 sec. the devices goes back to sleep. Single click means adding to this association group, double click means removing the node selected in step (3) from this association group.

Find the Z-Wave actuator you like to control by the key fob. Hit the button on the device to issue a Node Information Frame within 20 sec. Typically this is achieved by hitting a control button one or three times. Please consult the manual of the device to be controlled for more information. Any button press on Key Fob at this stage will terminate the process.

4.3 Wakeup of the device

The Key Fob is a battery-operated remote control device that will remain in sleep state most of the time. Every click on the buttons will initiate a command to be sent out but the device will return into sleep state right after sending out the command.

In order to receive commands the device will stay awake for 2 seconds after sending out a Node Information Frame and Wake up Notification.

Additionally the device will wake up regularly. The wakeup interval can be defined using the Wakeup Command class. The minimum allowed wakeup time is 240s but it's strongly recommended to define a much longer interval since the only purpose of a wakeup should be the reporting of the battery status or an update of the child protection settings. Defining Node id of 0 as a destination of the Wake up Notification will disable the periodical wakeup function entirely.

On factory default the wakeup destination node id is set to 0 - hence the periodical wakeup function is disabled.

4.4 Child Protection

The device can be turn into a child protection mode. This means that the local operation of the device is not possible. The child protection mode MUST be turned on wirelessly. However it is possible to unlock the device for local operation with a long press of any button for 5 seconds. The unlock state will last for 5 seconds.

4.5 LED -Codes

- Confirmation - 2 sec
- Failure - 1 sec tree times
- Button press confirmation - 1/4 sec
- Waiting for Network Management mode selection – slow blink
- Waiting for group selection in Self-Association mode - fast blink

4.6 Z-Wave Configuration

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the functionality better to user needs or unlock further enhanced features.

Modes for Button 1 and 3 (parameter No 1/1 byte)

Defines how the two buttons are assigned to each other.

- 0 Separate buttons
- 1 Buttons are grouped (#1 is on, #3 is off, or inverted), no double click supported (default)
- 2 Buttons are grouped (#1 is on, #3 is off, or inverted), double click supported

Modes for Button 2 and 4 (parameter No 2/1 byte)

Defines how the two buttons are assigned to each other.

- 0 Separate buttons
- 1 Buttons are grouped (#2 is on, #4 is off, or inverted), no double click supported (default)
- 2 Buttons are grouped (#2 is on, #4 is off, or inverted), double click supported

Action on group 1 (parameter No 11/1 byte)

Defines which command should be sent to the group. Basic and Scene Activation commands are sent to association group. Switch-All commands are sent broadcast.

- 0 Disabled
- 1 Control Dimmer, Motor Control and Switches using Basic + Multilevel Switch Commands (default)
- 2 Control Switches only, click and hold sends only Basic Commands
- 3 Switch All On/Off
- 4 Send Scene Activation
- 5 Control preconfigured Scenes
- 6 Control devices in proximity via Switch All

Action on group 2 (parameter No 12/1 byte)

Defines which command should be sent to the group. Basic and Scene Activation commands are sent to association group. Switch-All commands are sent broadcast.

- 0 Disabled
- 1 Control Dimmer, Motor Control and Switches using Basic + Multilevel Switch Commands (default)
- 2 Control Switches only, click and hold sends only Basic Commands
- 3 Switch All On/Off
- 4 Send Scene Activation
- 5 Control preconfigured Scenes
- 6 Control devices in proximity via Switch All

Action on button 3 (parameter No 13/1 byte)

Defines which command should be sent to the group. Basic and Scene Activation commands are sent to association group. Switch-All commands are sent broadcast.

- 0 Disabled
- 1 Control Dimmer, Motor Control and Switches using Basic + Multilevel Switch Commands (default)
- 2 Control Switches only, click and hold sends only Basic Commands
- 3 Switch All On/Off

- 4 Send Scene Activation
- 5 Control preconfigured Scenes
- 6 Control devices in proximity via Switch All

Action on button 4 (parameter No 14/1 byte)

Defines which command should be sent to the group. Basic and Scene Activation commands are sent to association group. Switch-All commands are sent broadcast.

- 0 Disabled
- 1 Control Dimmer, Motor Control and Switches using Basic + Multilevel Switch Commands (default)
- 2 Control Switches only, click and hold sends only Basic Commands
- 3 Switch All On/Off
- 4 Send Scene Activation
- 5 Control preconfigured Scenes
- 6 Control devices in proximity via Switch All

Typical click timeout (parameter No 20/1 byte)

Typical time used to differentiate click, hold, double and click-holds.

1 – 100 in 10 ms units (default is 50, that is equivalent to 500 ms)

Send the following Switch All commands (parameter No 21/1 byte)

- 1 Switch All Off only (default)
- 2 Switch All On only
- 255 Switch All On and Off

Invert buttons (parameter No 22/1 byte)

- 0 No (default)
- 1 Yes

LED confirmation mode (parameter No 24/1 byte)

Defines how the two buttons are assigned to each other.

- 0 No confirmations
- 1 Confirm button press
- 2 Confirm button press and delivery (default)

Send unsolicited battery report on wakeup (parameter No 30/1 byte)

- 0 No (default)
- 1 To same node as wakeup notification
- 2 Broadcast

5 Z-Wave specific device information

5.1 Z-Wave Device Types

- Generic: Remote Switch
- Specific: Multilevel Remote Switch

5.2 Supported Command Classes:

- Association (V2),
- Battery (V1),

- Configuration (V1),
- Manufacturer Specific (V1),
- Multi Channel Association (V2),
- Node Naming and Location (V1),
- Protection (V1),
- Version (V1),
- Scene Controller
- Configuration (V1),
- Wakeup (V2)

5.3 Controlled Command Classes

- Basic,
- Multilevel Switch,
- Switch All,
- Scene Activation,
- Multichannel