

Siren User Manual

Version	Written By	Date	Change List
1.0	Yongqi	20180412	Initial
1.1	Yongqi	20180730	Modify Configuration CC
1.2	Yongqi	20180806	Modify “Security Keys” Table

This device is an audible and visual alarm with 10 different sounds and it is based on Z-Wave™ Plus technology.

This product can be included and operated in any Z-Wave™ network with other Z-Wave™ certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

Z-Wave™ Network Inclusion/Exclusion/Reset

There is one button in the back side of the sensor, it can be executed inclusion, exclusion and reset from Z-Wave™ network.

Inclusion ¹	<ol style="list-style-type: none"> 1、 Power up the device. 2、 Set Z-Wave™ Controller into inclusion mode 3、 Press the button 3 times within 1.5s to enter inclusion mode. 4、 The device will be recognized and automatically included into Z-Wave™ Network. 	Led lights will be blinked with 1s interval until inclusion successful.
Exclusion	<ol style="list-style-type: none"> 1、 Power up the device. 2、 Set Z-Wave™ Controller into exclusion mode 3、 Press the button 3 times within 1.5s to enter exclusion mode 	Led lights will be blinked 3 times with 0.3s interval.
Factory Reset ²	<ol style="list-style-type: none"> 1、 Power up the device. 2、 Press and hold the button for 10s until led lights is on, then release the button. 	Reset successfully, led light will be Blinked 5 times.
Product Test Mode	<ol style="list-style-type: none"> 1、 Press and hold the button. 2、 Power on the device, device will enter factory product test mode 	Led will blink with 100ms interval.

Notice 1: When device enters into inclusion mode, the device all functionality will be useless. The inclusion mode will be timeout after 30s, user can press the button 3 times within 1.5s to terminate inclusion mode.

Notice 2: Factory Reset will clear the device all Z-Wave™ Network data (include home id, node id, etc...) saved in memory, and restore all configuration parameters to factory default. Please use this procedure only when the network primary controller is missing or otherwise inoperable.

Association

The device supports 1 association groups, and each group supports max 5 associated nodes.

Group 1 is lifeline group; all nodes which associated in this group will receive the messages sent by device through lifeline.

Group	Command Class	Event
1 (Lifeline)	COMMAND_CLASS_NOTIFICATION COMMAND_CLASS_SWITCH_BINARY COMMAND_CLASS_BATTERY COMMAND_CLASS_DEVICE_RESET_LOCALLY	NOTIFICATION_REPORT SWITCH_BINARY_REPORT BATTERY_REPORT DEVICE_RESET_LOCALLY_NOTIFICATION

Z-Wave™ Message Report

Once the device is triggered by an associated device or controller, it will report two events to controller to indicate device state: Notification Report and Switch Binary Report.

Notification Report

Command Class	COMMAND_CLASS_NOTIFICATION
Command	NOTIFICATION_REPORT
Type	SIREN (0x0E)
Event	NOTIFICATION_EVENT_SIREN_ACTIVE (0x01) NOTIFICATION_EVENT_SIREN_INACTIVE (0x00)

Switch Binary Report

Command Class	COMMAND_CLASS_SWITCH_BINARY
Command	SWITCH_BINARY_REPORT
Value	0x00/0xFF

Z-Wave™ Control Command

Turn on Siren

There are three modes to turn on siren listed as table below:

Siren State	Command Class	Command	Value
ON	COMMAND_CLASS_SWITCH_BINARY	SWITCH_BINARY_SET	0xFF
	COMMAND_CLASS_BASIC	BASIC_SET	0xFF
	COMMAND_CLASS_INDICATOR	INDICATOR_SET	0x01 ~ 0x0A

Turn off Siren

There are three modes to turn off siren listed as table below:

Siren State	Command Class	Command	Value
OFF	COMMAND_CLASS_SWITCH_BINARY	SWITCH_BINARY_SET	0x00
	COMMAND_CLASS_BASIC	BASIC_SET	0x00
	COMMAND_CLASS_INDICATOR	INDICATOR_SET	0x00

Alarm Sound Select

There have 10 alarm sounds building in this device.

There have 2 methods for user to select different sound:

1 User can select alarm sound by configured the Configuration No. 5 and 6.

2 User can play alarm sound by send INDICATOR_SET command with COMMAND_CLASS_INDICATOR:

Command	Sound Index	Playing Volume And Time
INDICATOR_SET = 0x01	1	Defined By Param #3, #4
INDICATOR_SET = 0x02	2	Defined By Param #3, #4
INDICATOR_SET = 0x03	3	Defined By Param #3, #4
INDICATOR_SET = 0x04	4	Defined By Param #3, #4
INDICATOR_SET = 0x05	5	Defined By Param #3, #4
INDICATOR_SET = 0x06	6	Defined By Param #3, #4
INDICATOR_SET = 0x07	7	Defined By Param #3, #4
INDICATOR_SET = 0x08	8	Defined By Param #3, #4
INDICATOR_SET = 0x09	9	Defined By Param #3, #4
INDICATOR_SET = 0x0A	10	Defined By Param #3, #4

Other values (0x0B ~ 0xFF) are invalid.

Command Class Configuration

The device supports the controller to configure parameters of the device through Configuration Command Class, and the device has 9 parameters available for users to set according to their different needs:

1) Alarm Sound Volume

This parameter defines the output volume when siren plays door bell sound. Door Bell sound volume is divided into 3 stages, Low (Parameter is set to '1'), Middle (Parameter is set to '2'), High (Parameter is set to '3'). Default value is '3'.

Parameter Number	Size (Byte)	Available Settings	Default value
1	1	1~ 3	3

2) Alarm Sound Duration Time

This Parameter defines the alarm sound duration time when siren receive an alarm sensor notification report or an alarm command from controller.

The duration time is divided into 5 stages:

- ◆ Siren is not on (Parameter is set to '0'),
- ◆ 30 second (Parameter is set to '1'),
- ◆ 1 minute (Parameter is set to '2'),
- ◆ 5 minute (Parameter is set to '3')
- ◆ Siren is always on until battery is dead (Parameter is set to '0x7F').

Default value is '2'.

The value for this parameter is unsigned value.

Parameter Number	Size (Byte)	Available Settings	Default value
2	1	0 ~ 3, 127	2

3) Door Bell Sound Duration Time

This parameter defines the door bell sound duration time when siren receives a door/window sensor notification report or an alarm command (BASIC_SET = 0x02) from controller. The door bell sound will be played always if this parameter is set to '0x7F'. The door bell sound will not be played if this parameter is set to '0'. Other values are the door bell sound playing duration time. Unit: Time.

The value for this parameter is unsigned value.

Parameter Number	Size (Byte)	Available Settings	Default value
3	1	0 ~ 127	1

4) Door Bell Sound Volume

This parameter defines the output volume when siren plays alarm sound. Door Bell sound volume is divided into 3 stages: Low (Parameter is set to '1'), Middle (Parameter is set to '2'), High (Parameter is set to '3'). Default value is '1'.

Parameter Number	Size (Byte)	Available Settings	Default value
4	1	1 ~ 3	1

5) Alarm Sound Index

This parameter defines the alarm sound index for siren play different sound when alarm occurs. There are 10 different sound for user selection.

Parameter Number	Size (Byte)	Available Settings	Default value
5	1	1 ~ 10	10

6) Door Bell Sound Index

This parameter defines the door bell sound index for siren play different sound when alarm occurs. There are 10 different sound for user selection.

Parameter Number	Size (Byte)	Available Settings	Default value
6	1	1~ 10	9

7) Default Siren On Mode

This parameter defines the default sound index, volume and the duration time for siren on. This parameter can be selected between ALARM SOUND and DOOR BELL SOUND. The settings for ALARM SOUND MODE defines by Param #1, #2 and #5. The settings for DOOR BELL SOUND MODE defines by Param #3, #4 and #6.

If parameter is set to '1', siren will select ALARM SOUND MODE to play sound;

If parameter is set to '2', siren will select DOOR BELL SOUND MODE to play sound;

Parameter Number	Size (Byte)	Available Settings	Default value
7	1	1, 2	1

8) Alarm Led Enable

This parameter defines the default led enable status when siren is on for ALARM SOUND MODE.

If parameter is set to '0', led will be disable.

If parameter is set to '1', led will be enable. When siren is on, the led will blink.

Parameter Number	Size (Byte)	Available Settings	Default value
8	1	0, 1	1

9) Door Bell Led Enable

This parameter defines the default led enable status when siren is on for DOOR BELL SOUND MODE.

If parameter is set to '0', led will be disable.

If parameter is set to '1', led will be enable. When siren is on, the led will blink.

Parameter Number	Size (Byte)	Available Settings	Default value
9	1	0, 1	0

Battery Command Class

The users can also enquire the battery status of the device by sending BATTERY_GET command. Once the device receives the command, it will return BATTERY_REPORT command.

The device will send BATTERY_LEVEL = 0xFF command to the Z-Wave™ Controller to inform that the device is in dead battery status, otherwise BATTERY_LEVEL value range is 0% to 100%.

Smart Start

This device supports Smart Start function. QR code printed by laser can be found on surface of product and the outside of packing box. And the full DSK code is printed can be found on the packing box.

The device will enter Smart Start if the device is not included in network after power up. And if device is not included successfully during 10 second, it will enter sleep mode. And then

2nd Smart Start time delay approximately 16s

3rd Smart Start time delay approximately 32s

4th Smart Start time delay approximately 64s

5th Smart Start time delay approximately 128s

6th Smart Start time delay approximately 256s

7th Smart Start time delay approximately 512s

Afterwards, the Smart start mode will be auto running with 512 second interval until device is included successfully or battery run down.

Led Action Indicator

LED Color	Led Display Status	Description
Red	Blink 5 Times(1s Interval)	Power on and Not Add in Z-Wave Network
	Blink 5 Times(300ms Interval)	Power on and Already Add in a Z-Wave Network
	Blink 3 Times(500ms Interval)	1, Press button tripled, device sends Node Info. 2, Press button tripled, device enters into exclusion mode.
	1, Blink with 1s interval and then 2, Blink 15 times with 2s interval	Press button tripled, device enters into inclusion mode. Device assigned a node id and wait for configuration completed.
	Light On 500ms	Hold pressed the button and factory reset.

Security Network

The device supports the security function with S2 encrypted communication. The device will auto switch to the security mode when the device included with a security controller. In the security mode, the follow commands must use security and security_2 command class wrapped to communicate, otherwise the device will not response any commands.

Security Keys

This device supports security levels are listed in below table:

Security Levels	Support (Yes/No)
SECURITY_KEY_S0	No
SECURITY_KEY_S2_UNAUTHENTICATED	Yes
SECURITY_KEY_S2_AUTHENTICATED	No
SECURITY_KEY_S2_ACCESS	No

All Supports Command Class

This device supports All Z-Wave Command Classes in NIF List as follows:

- * COMMAND_CLASS_ZWAVEPLUS_INFO (V2)
- * COMMAND_CLASS_SECURITY_2 (V1)
- * COMMAND_CLASS_TRANSPORT_SERVICE (V2)
- * COMMAND_CLASS_VERSION (V2)
- * COMMAND_CLASS_POWERLEVEL (V1)
- * COMMAND_CLASS_ASSOCIATION (V2)
- * COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION (V3)
- * COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)
- * COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)
- * COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)
- * COMMAND_CLASS_BATTERY (V1)
- * COMMAND_CLASS_NOTIFICATION (V8)
- * COMMAND_CLASS_SWITCH_BINARY (V1)
- * COMMAND_CLASS_INDICATOR (V1)
- * COMMAND_CLASS_CONFIGURATION (V1)
- * COMMAND_CLASS_SUPERVISION (V1)

All Security Command Class in Security Network

The Z-Wave Command Classes are secured in security network as follows:

- * COMMAND_CLASS_VERSION (V2)
- * COMMAND_CLASS_POWERLEVEL (V1)
- * COMMAND_CLASS_ASSOCIATION (V2)
- * COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION (V3)
- * COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)
- * COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)
- * COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)
- * COMMAND_CLASS_BATTERY (V1)
- * COMMAND_CLASS_NOTIFICATION (V8)
- * COMMAND_CLASS_SWITCH_BINARY (V1)
- * COMMAND_CLASS_INDICATOR (V1)
- * COMMAND_CLASS_CONFIGURATION (V1)

Non-Secure Command Class in Secure Network

Unsecure Command Class which included in a secure Z-Wave Network is listed in unsecure node information.

- * COMMAND_CLASS_ZWAVEPLUS_INFO (V2)
- * COMMAND_CLASS_SECURITY_2 (V1)
- * COMMAND_CLASS_TRANSPORT_SERVICE (V2)
- * COMMAND_CLASS_SUPERVISION (V1)

Specifications

Power Supply	CR123A × 2
Standby Current	55uA
Work Current(RF Tx)	36mA (In Radio Transmitter Mode) 500mA (In Siren On and Max Volume Mode)
Operational Temperature	0 - 70°C
Communication frequency	868.40MHz, 869.85MHz (EU) 908.40MHz, 916.00MHz(US)
Range	Up to 45m indoors (depending on the building structure), and 80m for outdoor open fields. Up to 60m outdoors.