Aeotec Doorbell Gen5

(Z-Wave Doorbell Gen5)
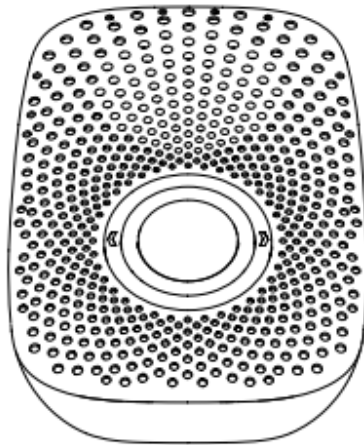
Change history

Revision	Date	Change Description
1	01/22/2015	Initial draft.
2	06/01/2015	Update

Aeotec Doorbell Gen5
Engineering Specifications and Advanced Functions for Developers

Aeotec Doorbell is a switch binary device based on Z-wave enhanced slave library V6.51.06.

The Doorbell supports playing MP3 music files with a press of this doorbell. It has a 128MB flash memory that can store up to 100 ringtones. The volume can be adjusted manually via short press on the Volume button, also you can switch the doorbell sound to the next via long press on the Volume Button. You may change/update your doorbell ringtone at any point in time you want by connecting your Doorbell to your PC to update the sound track on your Doorbell's flash memory.

It 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.

It is also a security Z-wave device and supports the Over The Air (OTA) feature for the product's firmware upgrade.

1. Library and Command Classes
1.1 SDK: 6.51.06
1.2 Library
- Basic Device Class: BASIC_TYPE_ROUTING_SLAVE
- Generic Device class: GENERIC_TYPE_SWITCH_BINARY
- Specific Device Class: SPECIFIC_TYPE_SIREN
1.3 Commands Class

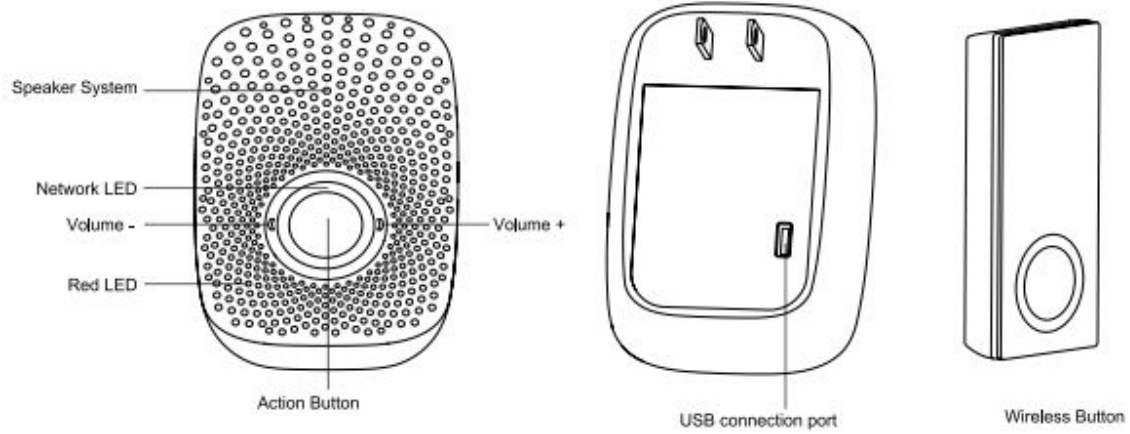|	Included Non-Secure	Included Secure
Node Info Frame	COMMAND_CLASS_ZWAVEPLUS_INFO V2 COMMAND_CLASS_VERSION V2 COMMAND_CLASS_SECURITY V1 COMMAND_CLASS_BASIC V1 COMMAND_CLASS_SWITCH_BINARY V1 COMMAND_CLASS_CONFIGURATION V1 COMMAND_CLASS_MANUFACTURER_SPECIFIC V2 COMMAND_CLASS_ASSOCIATION_GRP_INFO V1 COMMAND_CLASS_ASSOCIATION V2 COMMAND_CLASS_POWERLEVEL V1 COMMAND_CLASS_FIRMWARE_UPDATE_MD V2 COMMAND_CLASS_MARK V1 COMMAND_CLASS_DEVICE_RESET_LOCALLY V1 COMMAND_CLASS_HAIL V1	COMMAND_CLASS_ZWAVEPLUS_INFO V2 COMMAND_CLASS_SECURITY V1 COMMAND_CLASS_VERSION V2 COMMAND_CLASS_MARK V1 COMMAND_CLASS_DEVICE_RESET_LOCALLY V1 COMMAND_CLASS_HAIL V1
Security Command Supported Report Frame		COMMAND_CLASS_BASIC V1 COMMAND_CLASS_SWITCH_BINARY V1 COMMAND_CLASS_CONFIGURATION V1 COMMAND_CLASS_MANUFACTURER_SPECIFIC V2 COMMAND_CLASS_ASSOCIATION_GRP_INFO V1 COMMAND_CLASS_ASSOCIATION V2 COMMAND_CLASS_POWERLEVEL V1 COMMAND_CLASS_FIRMWARE_UPDATE_MD V2

2. Technical Specifications

Operating distance: Up to 500 feet (150 meters) outdoors.

RF technology support: Wireless Button supports 433MHz wireless control and the Doorbell supports z-wave wireless control.

3. Familiarize yourself with your Doorbell
3.1 Interface

Speaker System

Network LED

Volume -

Red LED

Action Button

Volume +

USB connection port

Wireless Button

4. All functions of each trigger

4.1 Functions of Z-Wave Buttons

Trigger	Description
Click the Action Button one time.	**Let Doorbell into Learn Mode.** **Add Doorbell into Z-Wave Network:** 1. Install Doorbell, and plug it into the socket of AC Power. 2. Let the primary controller into inclusion mode (If you don't know how to do this, please refer to its manual). 3. Press the Action Button. 4. If the inclusion is failed, please repeat the process from step 2. **Remove Doorbell from Z-Wave Network:** 1. Install Doorbell, and plug it into the socket of AC Power. 2. Let the primary controller into exclusion mode (If you don't know how to do this, refer to its manual). 3. Press the Action Button. 4. If the remove is failed, please repeat the process from step 2. **Note**: If Doorbell is removed from Z-wave network, it will be reset to factory default.
Press and hold the Action Button for 20 seconds	**Reset Doorbell to Factory Default:** 1. Make sure the Doorbell is connected to the power supply. 2. If holding time more than one second, the Network LED will fast blink. If holding time more than 20 seconds, Network LED will be on for 2 seconds, which indicates the reset operation is successful, otherwise please repeat from step1 to step2. **Note**: 1. This procedure should only be used when the primary controller is inoperable. 2. Reset Doorbell to factory default settings will: a), remove Doorbell from Z-Wave network state; b), delete the Association setting; c), restore the configuration settings to the default.
Button +/-	Press and hold: Switch the ringtone to the next (configurable).
	Short press: Increase or decrease the volume (configurable).
	Press these 2 buttons once: The Doorbell will enter into Wireless Button pairing mode, the Network Led will fast blink, at this time, press the Wireless Button once, if the Network Led stop fast blinking and you can use the Wireless Button to trigger the doorbell ringtone, which means the pairing is successful. Otherwise, repeat the steps. Note: This procedure should only be used when the complimentary Wireless Button is missing or inoperable and you have another new Wireless Button that would be paired with your Doorbell.

4.2 Functions of Wireless Button.

Trigger	Description
Click one time	1. Trigger to turn on the ringtone. 2. Pair it to Doorbell if the Doorbell is in pairing state. 3. Trigger to send the low battery report to associated nodes in association group 1 (configurable) if the current battery is in low battery state.

5. Special rule of each command

5.1 Z-Wave Plus Info Report Command Class

Parameter	Value
Z-Wave Plus Version	1
Role Type	5 (ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON)
Node Type	0 (ZWAVEPLUS_INFO_REPORT_NODE_TYPE_ZWAVEPLUS_NODE)
Installer Icon Type	0x0F00 (ICON_TYPE_GENERIC_SIREN)
User Icon Type	0x0F00 (ICON_TYPE_GENERIC_SIREN)

5.2 Association Command Class

The Doorbell supports 2 association groups and Max 5 nodes for each group.

Association Group	Nodes	Send Mode	Send commands
Group 1	0	N/A	N/A
	1	Single Cast	When the state of Doorbell (trigger to turn on/off the ringtone) is changed: 1, Set Configuration parameter 80 to 0 Reserved (Default). 2, Set Configuration parameter 80 to 1 Send Hail CC. 3. Set Configuration parameter 80 to 2: Send the Basic Report.
	[2,5]		
Group 2	0	N/A	N/A
	[1,5]	Single Cast	Forward the Basic Set, Switch Binary Set to associated nodes in Group 2 when the Doorbell receives the Basic Set, Switch Binary Set commands from main controller.

5.3 Association Group Info Command Class

5.3.1 Association Group Info Report Command Class

Profile: General: NA (Profile MSB=0, Profile LSB=0)

5.3.2 Association Group Name Report Command Class

Group 1：Lifeline

Group 2   Transmit

5.4 Manufacturer Specific Report Command Class

Parameter	Value
Manufacturer ID 1	0x00
Manufacturer ID 2	0x86
Product Type ID 1	EU=0x00, US=0x01, ANZ=0x02, HK=0x03 IN=Ox09， CN=0x1D, RU=0x1A, JP=0x0A

Product Type ID 2	0x04
Product ID 1	0x00
Product ID 2	0x38

5.5Configuration Set Command Class

7	6	5	4	3	2	1	0
Command Class = COMMAND_CLASS_CONFIGURATION							
Command = CONFIGURATION_SET							
Parameter Number							
Default	Reserved				Size		
Configuration Value 1(MSB)							
Configuration Value 2							
………							
Configuration Value n(LSB)							

Parameter Number Definitions (8 bit):

Parameter Number	Description	Default Value	Size
2	Set the repetitions for playing doorbell ringtone. Value=1 to 100, the range of repetition is 1 to 100. Value =0, ignore. Note: If the time of playing doorbell ringtone is more than 20s, the volume of ringtone will reduce to silence no matter how many repetitions of doorbell ringtone are set.	2	1
5	Set the default doorbell ringtone. Value=1-100, Specify the ringtone as default. Value=others, ignore.	1	1
6	Select a ringtone to play. Value=0, stop playing. Value=1-100, play the specified ringtone. Value=other, ignore.	N/A	1
7	Control items: Value=1, play Value=2, stop Value=3, pause Value=4, Next Value=5, Previous Other, ignore	N/A	1
8	Set the volume of ringtone. Value=0-10, set the volume Value=other, ignore	10	1
10	Define functions of Button - and Button+ . Value=0, Button - is previous, Button+" is next. Value=1, Swap functions of the two buttons.	0	1

11	Define functions of "Button -" and "Button+" when short pressing and long pressing it. Value=0, short pressing changes volume, long pressing changes default ringtone. Value=1, long pressing changes volume, short pressing changes default ringtone.	0	1
42	Get Wireless Button battery status. Value=0x00, Normal battery level. Value=0xFF, Low battery level. Set Value=0x00, Cancel low battery alarm.	0	1
80	Enable/disable to send notifications to associated devices (Group 1) when the state of Doorbell is changed (0=nothing, 1=hail CC, 2=basic CC report).	0	1
81	Enable/disable to send notifications to associated devices (Group 1) when the Wireless Button's battery is in low battery state	1	1
241	Pair the Wireless Button with Doorbell. Value=0x55555555, Start the Wireless Button pairing mode and the blue Led will blink slowly, short press the Wireless Button once, if the blue Led change to be solid, which means the pairing is successful. Otherwise, repeat the steps. It will automatically exit the pairing mode after 8s if there is no pressing action of the Wireless Button. Note: You can send this configuration Get CC to ask the pairing result: If configuration report value=0x00000000, which means the pairing is failed. If configuration report value =0xFFFFFFFF, which means the pairing is successful.	0	4
252	Enable/disable Lock Configuration (0 =disable, 1 = enable).	0	1
255	1. Size=0x01，Configuration Value=0x00: Reset configuration setting. 2. Size=0x04，Configuration Value=0x55555555: Reset Factory setting.	N/A	4