Aeon Labs Micro Smart Dimmer (2nd Edition)

(Z-Wave Micro Smart Dimmer (2nd Edition))

Document No:						
Version:	1					
Description:	The purpose of this document is to provide guidelines for the user and application developer of Aeon Labs Z-Wave Smart Dimmer.					
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Date:						

REVISION RECORD

Revision	Date	BY	Brief description of changes
1	02/15/2013		Initial draft.
2	05/31/2013		Updata Z-wave Library

Aeon Labs Micro Smart Dimmer (2nd Edition)
Engineering Specifications and Advanced Functions for Developers
(V1.20)

The Aeon Labs Micro Smart Dimmer (2nd Edition) is a scene multilevel switch device based on Z-wave enhanced slave library V4.55.00

1. Library and Command Classes

1.1 SDK: 4.55.00

1.2 Library

- Basic Device Class: BASIC_TYPE_ROUTING_SLAVE
- Generic Device class: GENERIC_TYPE_SWITCH_MULTILEVEL
- Specific Device Class: SPECIFIC_TYPE_POWER_SWITCH_ MULTILEVEL

1.3 Commands Class

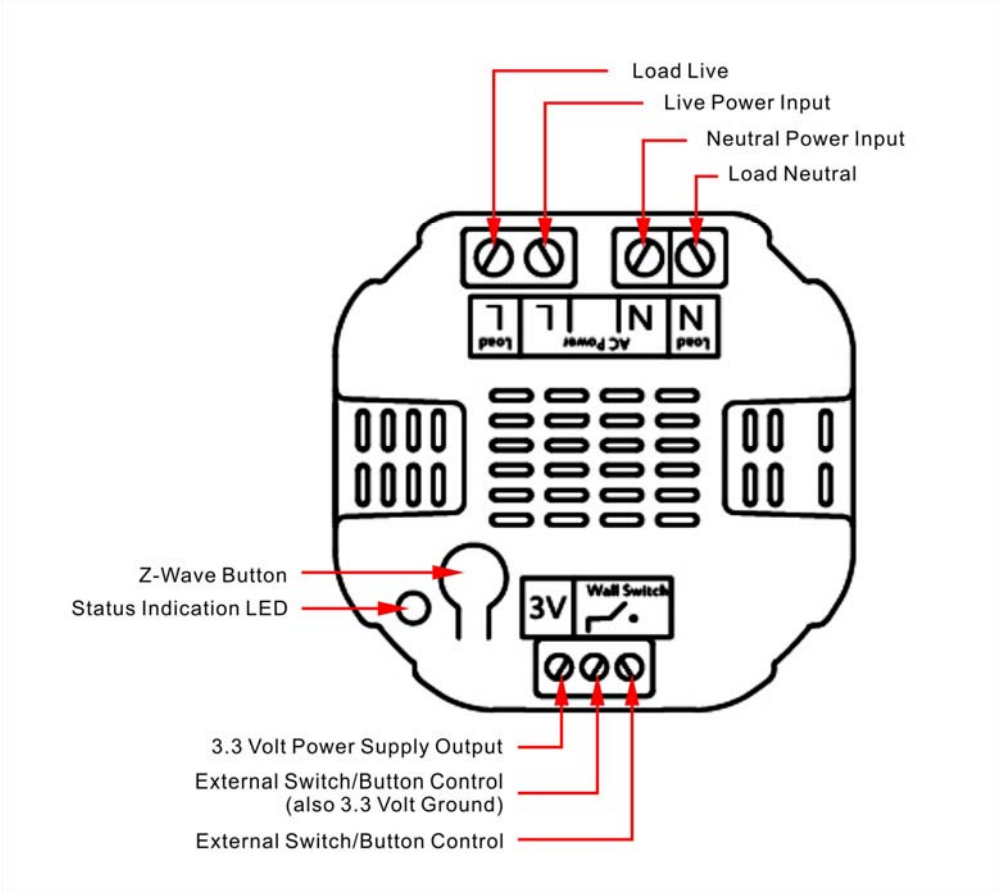
- COMMAND_CLASS_SWITCH_MULTILEVEL V2
- COMMAND_CLASS_SWITCH_ALL V1
- COMMAND_CLASS_METER V3
- COMMAND_CLASS_SCENE_ACTUATOR_CONF V1
- COMMAND_CLASS_SCENE_ACTIVATION V1
- COMMAND_CLASS_CONFIGURATION V1
- COMMAND_CLASS_ASSOCIATION V1
- COMMAND_CLASS_CRC_16_ENCAP V1
- COMMAND_CLASS_MANUFACTURER_SPECIFIC V2
- COMMAND_CLASS_VERSION V1
- COMMAND_CLASS_MARK V1
- COMMAND_CLASS_HAIL V1

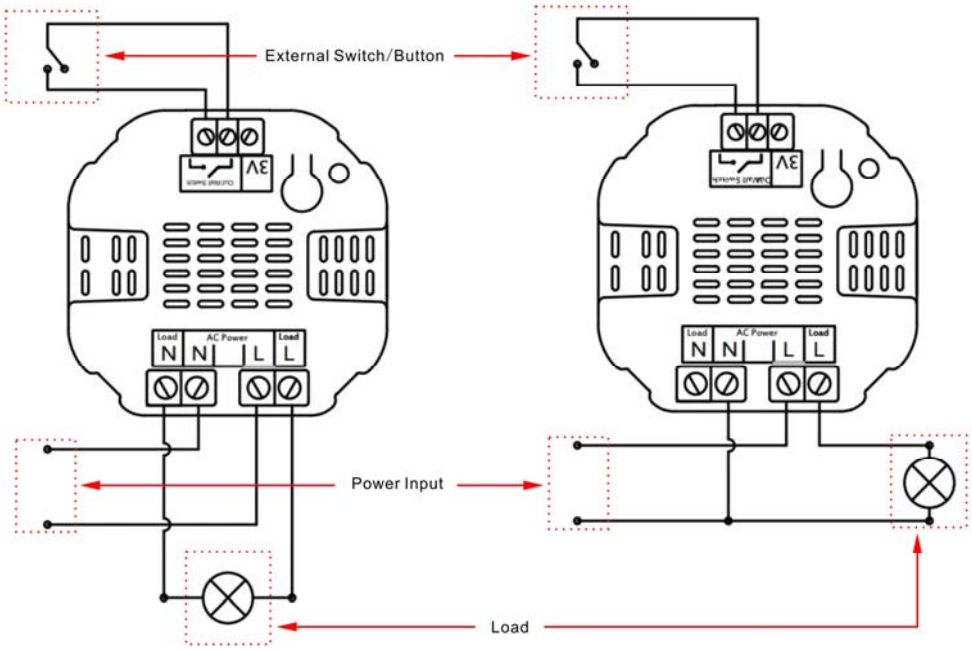
2. Technical Specifications

Operating Distance: Up to 100 ft (30 meters) indoors and 300 ft (100 meters) outdoors.

3. Familiarize yourself with your Micro Smart Dimmer

3.1 Interface


Load Live
Live Power Input
Neutral Power Input
Load Neutral
Load
N
N
AC Power
L
L
Load
Z-Wave Button
Status Indication LED
3V
Wall Switch
3.3 Volt Power Supply Output
External Switch/Button Control
(also 3.3 Volt Ground)
External Switch/Button Control


External Switch/Button
3V
Load
N
N
AC Power
L
L
Load
Power Input
Load

4. Function description

4.1 Functions of Z-Wave Button

Trigger	Description
Clicked	**Toggle on/off status, and let Smart Dimmer into learning mode.** **Include Smart Dimmer into an existing Z-Wave network:** 1. Install Micro Smart Dimmer, and connect Micro Smart Dimmer to an AC-input power source. 2. Let the primary controller of existing Z-Wave network into inclusion mode (If you don't know how to do this, refer to its manual). 3. Press the Z-Wave button. 4. If the Learning failed, please repeat the process from step 2. **Remove Smart Switch from an existing Z-Wave network:** 1. Installed Micro Smart Dimmer, and connect Micro Smart Dimmer to an AC-input power source. 2. Let the primary controller of existing Z-Wave network into remove mode (If you don't know how to do this, refer to its manual). 3. Press the Z-Wave button. 4. If the remove failed, please repeat the process from step 2.
Press and hold	Dim Up/Down.
Press and hold 5 seconds and releasing	Change the external switch modes of Micro Smart Dimmer: 1. Make sure the Micro Smart Dimmer has been connected to the power supply. 2. Holding then releasing the button after 5 seconds will cycle the mode on the external wall switch. (the LED will blink slowly after holding the button for 5 seconds).
Press and hold 15 seconds and releasing	Reset the external switch mode to "unknown": 1. Make sure the Micro Smart Dimmer has been connected to the power supply. 2. Holding then releasing the button after 15 seconds will reset the external switch mode to "unknown" and allow for an auto-detect via toggling the external switch once (the LED will be blinking fast after holding the button for 15 seconds).
Press and hold 30 seconds and releasing	Reset Micro Smart Dimmer to factory default settings: 1. Make sure the Micro Smart Dimmer has been connected to the power supply. 2. Holding the button for 30 seconds and releasing will reset the entire module including z-wave to factory default settings (the LED will stay solid after holding the button for 30 seconds). Note: The device Tag will not reset.

4.2 Functions of External Button

Trigger	Button Modes	Description
Click one time	Momentary button mode	1. When the Micro Smart Dimmer is first powered up, it does not know which type of external switch used, toggle

	2 state switch mode	the external switch one time and wait 2 seconds. The Micro Smart Dimmer will automatically detect which type of external switch is connected to its terminal. (The LED will go from blinking to solid) 2. If the Micro Smart Dimmer is not in a Z-Wave network, it will enter into learn mode and send Node Info to search for a controller in learn mode. 3. If the Micro Smart Dimmer has the external wall switch mode set already, it will toggle the load state directly.
	3-way switch mode	
Held	Momentary button mode	Dim up/Down.
Toggle 10 times in 2 seconds	Momentary button mode	If Micro Smart Dimmer is include into a z-wave network, it will sent Node Info and enter into the learning mode so it can be removed from z-wave network and the physical Micro unit in the gang box does not need to be touched.
	2 state switch mode	
	3-way switch mode	

5. Special Usage instructions of the command

5.1 Association Command Class

The Micro Smart Dimmer supports 2 Association groups: group1, group2.
The Node IDs in Group 1 will receive Hail Command /Basic report (configurable) which is sent via multicast(if there are more than 2 Node IDs) or singlecast (if there is only one Node ID) when the state of Micro Smart Dimmer's level changed.
When the Micro Smart Dimmer receives the following commands, it will forward the commands to all node IDs which are in Group 2. The command will be sent via multicast (if there are more than 2 Node IDs) or singlecast (if there is only one Node ID).
Commands: Basic Set, Switch Binary Set, Switch Multilevel Start Level Change, Switch Multilevel Stop Level Change, Switch Multilevel Set, Scene Activation Set.

5.2 Scene Actuator Conf Command Class

The Micro Smart Dimmer supports max 255 Scene ID.

The Scene Actuator Conf Set Command is effective, when only Level>=0 and Level<0x64 or Level=0xff, otherwise, it will be ignored.

The Scene Actuator Configuration Get Command is used to request the settings for a given scene, if scene ID is not setting, it will be ignored. If the scene ID setting Dimming Duration = 0xff then Dimming Duration=3 else Dimming Duration= settings value. If Scene ID =0, then the Micro Smart Dimmer will report currently the activated scene settings. If the currently activated scene settings do not exist, the Micro Smart Dimmer will reports Level = currently load status and Dimming Duration=3.

5.3 Scene Activation Set Command Class

The Scene Activation Set Command is effective, when only Level>=0 and Level<0x64 or Level=0xff, otherwise, it will be ignored. If the requested Scene ID is not configured, it will be ignored too.

5.4Configuration 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	Make Micro Smart Dimmer 2nd Edition blink. Configuration Value 1：1-255 Configuration Value 1 is to Specify the time that Micro Smart Dimmer 2nd Edition need blink, The unit is Second; Configuration Value 2：1-255 Configuration Value 2 is to Specify the Cycle of on/off; the unit of it is 0.1 second. For example: if we set Configuration Value 1 to '15',Configuration Value 2 to '10',then Micro Smart Dimmer 2nd Edition will open 0.5 second, close 0.5 second, and repeat for 14 times.	0x0f0a	2
3	Current Overload Protection. Load will be closed when the Current more than 2.7A and the time more than 2 minutes (0:disable, 1:enable, other:ignore).	0	1
13	Enable/Disable CRC16 encapsulation. 1:Enable 0:Disable Other: ignore	0	1
80	Enable to send notifications to associated devices (Group 1) when the state of Micro Smart Dimmer's load changed (0:nothing, 1:hail CC, 2:basic CC report, other: ignore).	0	1
90	Enables/disables parameter 91 and 92 below (1:enable, 0:disable, other:ignore).	1	1
91	The value here represents minimum change in wattage (in terms of wattage) for a REPORT to be sent.	25	2
92	The value here represents minimum change in wattage percent (in terms of percentage) for a REPORT to be sent.	5	1

100	Set 101-103 to default.	N/A	1
101	Which reports need to send in Report group 1.	4	4
102	Which reports need to send in Report group 2.	8	4
103	Which reports need to send in Report group 3.	0	4
110	Set 111-113 to default.	N/A	1
111	The time interval of sending Report group 1.(unit: second)	3	4
112	The time interval of sending Report group 2. (unit: second)	600	4
113	The time interval of sending Report group 3. (unit: second)	600	4
120	Turn external button mode (0:Momentary button mode, 1:2 state switch mode, 2:3 way switch mode, 255: Unidentified mode, Other: ignore).	255	1
200	Partner ID (0= Aeon Labs Standard Product).	0	1
252	Enable/disable Lock Configuration (0 :disable, 1 : enable, other: ignore).	0	1
254	Device Tag.	0	2
255	Reset configuration set to factory default setting.(except parameter 254.)	N/A	1

Parameter 101~103:

	7	6	5	4	3	2	1	0
Configuration Value 1(MSB)	Reserved							
Configuration Value 2	Reserved							
Configuration Value 3	Reserved							
Configuration Value 4(LSB)	Reserved	Reserved	Reserved	Reserved	MRC (KWH)	MRC (Watt)	MRC (Current)	MRC (Voltage)

Example:

a. Set Association group 1 Associate to node "1"

ZW_SendData(0x85, 0x01, 0x01, 0x01);

b. Set Association group 2 Associate to node "1"

ZW_SendData(0x85, 0x01, 0x02, 0x01);

c. Set default values

ZW_SendData(0x70, 0x04, 0x255,0x01,0x00);