# Aeon Labs Micro Switch (2nd Edition)

(Z-Wave Micro Switch (2nd Edition))

**Change history**

| Revision | Date | Change Description |
|---|---|---|
| 1 | 10/18/2012 | Initial draft. |
| 2 | 11/10/2012 | Update Z-wave button functions.<br>Add Power Level CC. |
| 3 | 5/28/2013 | Update Z-wave library |

**Aeon Labs Micro Switch (2nd Edition)**
**Engineering Specifications and Advanced Functions for Developers**
**(V3.01)**

The Micro Switch is a Z-Wave power binary switch device based on Z-Wave enhanced routing slave library V4.54.02
Micro Switch can turn on light or other loads via wireless or wall switch trigger. It is very small and it can be put into gangbox without changing wall switch.

## 1. Library and Command Classes

**1.1 SDK:** 4.54.02

**1.2 Library**

- Basic Device Class: BASIC_TYPE_ROUTING_SLAVE
- Generic Device class: GENERIC_TYPE_SWITCH_BINARY
- Specific Device Class: SPECIFIC_TYPE_POWER_SWITCH_BINARY

**1.3 Commands Class**

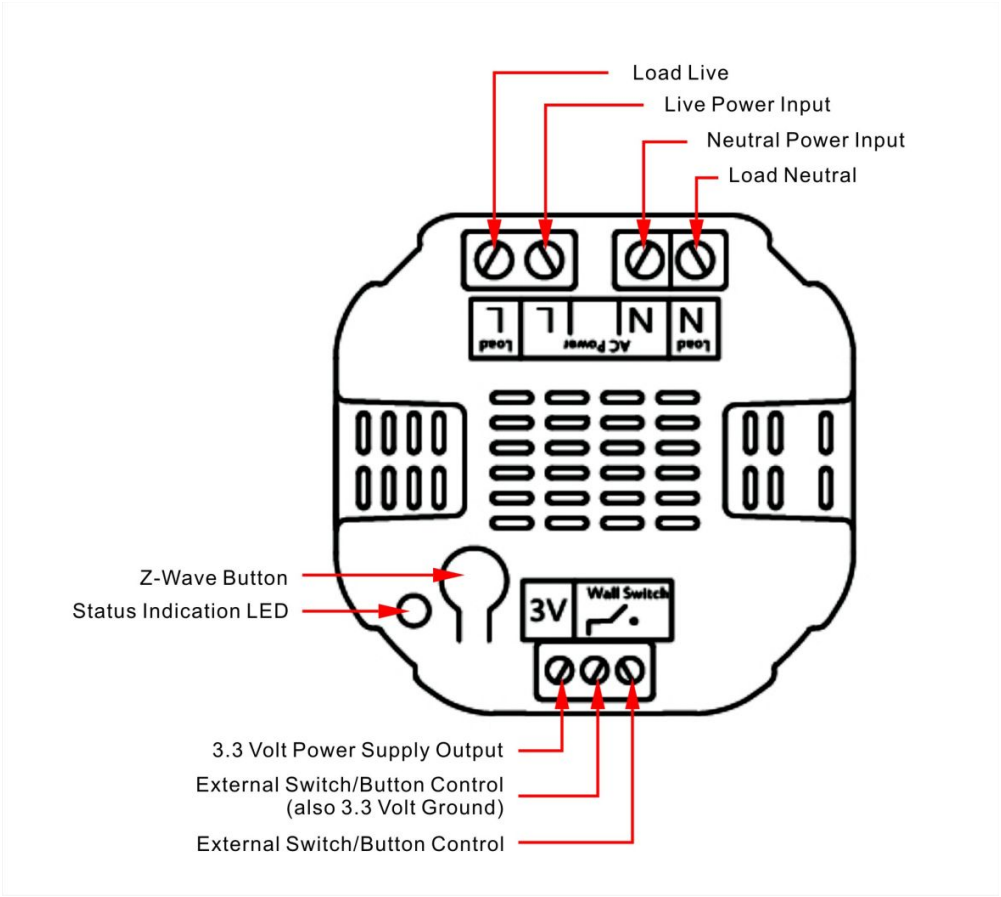
- COMMAND_CLASS_SWITCH_BINARY V1
- COMMAND_CLASS_SWITCH_ALL V1
- COMMAND_CLASS_SCENE_ACTUATOR_CONF V1
- COMMAND_CLASS_SCENE_ACTIVATION V1
- COMMAND_CLASS_CONFIGURATION V1
- COMMAND_CLASS_ASSOCIATION V1
- COMMAND_CLASS_CRC_16_ENCAP V1
- COMMAND_CLASS_MANUFACTURER_SPECIFIC V2
- COMMAND_CLASS_VERSION V1
- COMMAND_CLASS_MARK V1
- COMMAND_CLASS_HAIL V1

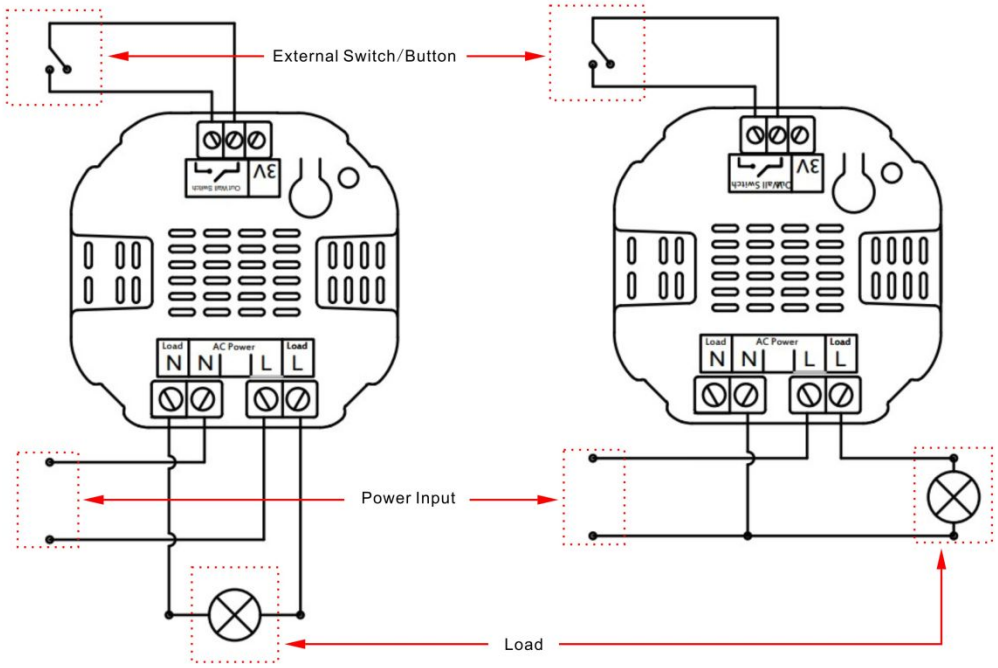
## 2. Technical Specifications

**Operating Distance:** Up to 100 ft / 30 meters indoors and 300 ft / 100 meters outdoors.
**Input:** 120V~, 60Hz. (USA verison)
230V~, 50Hz. (EU,AU, BR,CN version)
**Output:** 120V~, 60Hz, Max 10A Resistor load. (USA Version）
230V~, 50Hz, Max 10A Resistor load. (EU,AU, BR,CN version)
**Operating temperature:** -25℃ to 40℃.
**Relative humidity:** 8-80%

## 3. Familiarize yourself with your Repeater

**3.1 Interface**




## 4. All functions of each trigger

### 4.1 Functions of Z-Wave Button

| Trigger | Description |
|---|---|
| Click one time | **Add Smart Switch into an existing Z-Wave network:** |

| | |
|---|---|
| | 1.Installed Micro Switch into gangbox, and connect power from the AC Power input terminal. Or connect power from the Discovery tool.<br>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).<br>3. Press the Z-Wave button.<br>4. If the Learning fail, please repeat the process from step 2.<br>**Remove Smart Switch from an existing Z-Wave network:**<br>1. .Installed Micro Switch into gangbox, and connect power from the AC Power input terminal. Or connect power from the Discovery tool.<br>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).<br>3. Press the Z-Wave button.<br>4. If the remove fail, please repeat the process from step 2. |
| Press and hold 5 seconds and releasing | Change the external switch modes of Micro Switch:<br>1. Make sure the Micro Switch has been connected to the power supply.<br>2. Holding then releasing the button after 5 seconds will cycle the mode on the external wall switch. (the LED will be blinking slowly after holding the button for 5 seconds). |
| Press and hold 15 seconds and releasing | Reset the external switch mode to "unknown":<br>1. Make sure the Micro Switch has been connected to the power supply.<br>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 Switch to factory Default:<br>1. Make sure the Micro Switch has been connected to the power supply.<br>2. Holding the button for 30 seconds and releasing will reset the entire module including z-wave to factory default (the LED will stay solid after holding the button for 30 seconds).<br>Note: The device Tag will not reset. |

**4.2 Functions of External Button**

| Trigger | Button Modes | Description |
|---|---|---|
| Click one time | Momentary button mode<br>2 state switch mode<br>3-way switch mode | 1. When the Micro Switch is first powered up, it does not know which type of external switch used, toggle the external switch one time and wait 2 seconds. The Micro Switch will automatically detect which type of external switch is connected to it's terminals. (The LED will go from blinking to solid)<br>2. If the Micro Switch 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.<br>3. If the Micro Switch has the external wall switch mode set already, it will toggle the load state directly. |

| | | |
|---|---|---|
| Toggle 10 times in 2 seconds | Momentary button mode | If Micro Switch is in a z-wave network, it will sent Node Info and enterinto learn mode so it can be remove 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 rule of each command**

**5.1 Association Command Class**

The Micro Switch supports 2 Association groups.

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 Switch's load changed.

When the Micro Switch 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, Scene Activation Set.

**5.2 Scene Actuator Conf Command Class**

The Micro Switch 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=0 else Dimming Duration= settings value. If Scene ID =0, then the Micro Switch will report currently the activated scene settings. If the currently activated scene settings do not exist, the Micro Switch will reports Level = currently load status and Dimming Duration=0

**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 Switch 2nd Edition blink.<br>Configuration Value 1：1-255<br>Configuration Value 1 is to Specify the time that Micro Switch 2nd Edition need blink, The unit is Second;<br>Configuration Value 2：1-255<br>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 Switch 2nd Edition will open 0.5 second, close 0.5 second, and repeat for 14 times. | 0 | 2 |
| 80 | Enable to send notifications to associated devices (Group 1) when the state of Micro Switch's load changed (0=nothing, 1=hail CC, 2=basic CC report). | 0 | 1 |
| 120 | Turn external button mode<br>(0= Momentary button mode,<br>1=2 state switch mode,<br>2=3 way switch mode,<br>255= Unidentified mode). | 255 | 1 |
| 200 | Partner ID<br>(0= Aeon Labs Standard Product,<br>1= AT&T). | 0 | 1 |
| 252 | Enable/disable Lock Configuration (0 =disable, 1 = enable). | 0 | 1 |
| 254 | Device Tag. | 0 | 2 |
| 255 | Reset configuration set up to default setting. | N/A | 1 |

**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);