



Aeon Labs Micro SES – Engineering Specifications (SW Version:1.43)

(Z-Wave Micro Smart Energy Switch)



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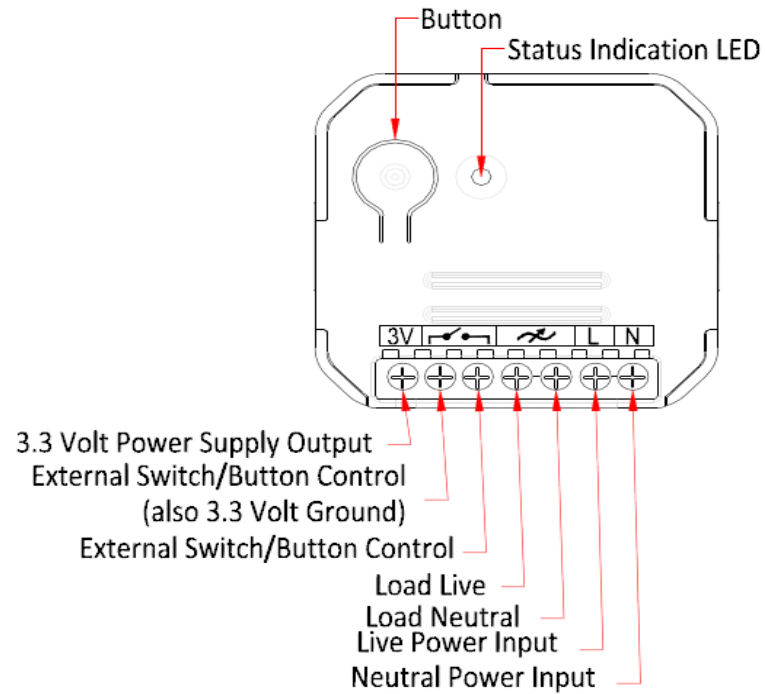
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1 Objective

The Aeon Labs Micro SES is a binary power switch device based on Zwave enhanced slave library V5.02P3. Micro SEI application lists the following supported command classes in the Node Information Frame:

- COMMAND_CLASS_SWITCH_BIANRY V1
- COMMAND_CLASS_SENSOR_MULTILEVEL V1
- COMMAND_CLASS_METER V2
- COMMAND_CLASS_SWITCH_ALL V1
- COMMAND_CLASS_CONFIGURATION V1
- COMMAND_CLASS_ASSOCIATION V1
- COMMAND_CLASS_MANUFACTURER_SPECIFIC V1
- COMMAND_CLASS_VERSION V1
- COMMAND_CLASS_MARK V1
- COMMAND_CLASS_HAIL V1

2 Interface



2.1 Event And Response

Event	Response
Button Clicked	Node info frame/Enter learn mode. Toggle on/off status.
Button Six Times Clicked	Toggle external switch/button control mode(momentary button mode/2 state switch mode).
External Switch/Button Clicked (momentary button mode)	Toggle on/off status.
External Switch/Button Six Times Clicked (momentary button mode)	Node info frame/Enter learn mode.
External Switch/Button Open (2 state switch mode)	Turn off.

External Switch/Button Close (2 state switch mode)	Turn on.
External Switch/Button Six Times Open/Close (2 state switch mode)	Node info frame/Enter learn mode.

3 Using the Configuration Command Class

3.1 Configuration Set Command

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)							

3.1.1 Parameter Number Definitions(8 bit):

Parameter Number	Description	Default	Size
2	Make Micro SEI blink.		2
3	Current Overload Protection.	0	1
80	Enables automatic notifications to associated devices whenever there is a state change. (0=nothing, 1=hail CC, 2=basic CC report).	0	1
90	Enables/disables parameter 91 and 92 below (1=enabled, 0=disabled, default is 0).	0	1

91	The value here represents minimum change in wattage (in terms of wattage) for a REPORT to be sent (default 50W, size 2 bytes).	50	2
92	The value here represents minimum change in wattage percent (in terms of percentage) for a REPORT to be sent (default 10%, size 1 byte).	10	1
100	Set 101-103 to default.		
101	Which reports need to send in Report group1.	0	4
102	Which reports need to send in Report group2.	0	4
103	Which reports need to send in Report group3.	0	4
110	Set 111-113 to default.		
111	The time interval of sending Report group 1.	600	4
112	The time interval of sending Report group 2.	600	4
113	The time interval of sending Report group 3.	600	4
120	Set External Switch/Button Control mode	1	1
254	Device Tag.	0	2
255	Reset to the default Configuration.		

3.1.2 Configuration Values for 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)	MSRC	Reserved

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- **MRC(KWH)** (1 bit)

The MRC(KWH) flag signals that Report Group 1 send(1) or don't send(0) Meter Report Command(KWh) automatically.

- **MRC(Watt)**(1 bit)

The MRC(Watt) flag signals that Report Group 1 send(1) or don't send(0) Meter Report Command(wattage) automatically.

- **MSRC** (1 bit)

The MSRC flag signals that Report Group 1 send(1) or don't send(0) Multilevel Sensor Report Command(wattage) automatically.

3.1.3 Other Configuration Values

Parameter Number	Configuration Value	Size(byte)	Description
2	Configuration Value 1: 1-255 Configuration Value 2: 1-255	2	Configuration Value 1 is to Specify the time that Micro SEI need blink, The unit is Second; 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 SEI will open 0.5 second, close 0.5 second, and repeat for 14 times.
3	0x00	1	Disable Current Overload Protection
	0x01		Enable Current Overload Protection
80	0x00	1	nothing

	0x01		Send hail CC
	0x02		Send basic report CC
111	0x0001-0xffff	4	interval (in seconds) to send out Report group 1
112	0x0001-0xffff	4	interval (in seconds) to send out Report group 2
113	0x0001-0xffff	4	interval (in seconds) to send out Report group 3
120	0x00	1	Momentary button mode
	0x01		2 state switch mode
254	0x0000-0xffff	2	Tag

3.1.4 Example of configuration

a. Automatically report Meter CC (Watts) to node "1" every 12 minutes

1. Set report group 1 send Meter CC (Watts) automatically

```
ZW_SendData(0x70, 0x04, 0x65, 0x04, 0x00,0x00,0x00,0x04);
```

2. Set the interval of sending report group 1

```
ZW_SendData(0x70, 0x04, 0x6F, 0x04, 0x00,0x00,0x02,0xd0);
```

3. Associate to node "1"

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

b. Set default values

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

Note:

- The value of parameter "1" only affect "Multilevel Sensor Report Command" which as a reply for "Multilevel Sensor Get Command". Multilevel Sensor Report Command which is sent automatically is always Power(Watt).
- If we reset Micro SEI to the default Configuration, tag will reset to 0.

- If Report Group1 and Report Group2 are set sending same report. The latest set will re-write the old set.
- For example:

Set following command:

```
ZW_SendData(0x70, 0x04, 101, 4, 0,0,0,6);
```

```
ZW_SendData(0x70, 0x04, 102, 4, 0,0,0,6);
```

The Multilevel Sensor Report Command will be sent in Report group2. we need to use 112(parameter number) to set the Multilevel Sensor Report interval time.

3.2 Configuration Get Command

7	6	5	4	3	2	1	0
Command Class = COMMAND_CLASS_CONFIGURATION							
Command = CONFIGURATION_GET							
Parameter Number							

3.2.1 Parameter Number (8 bit)

Refer to description under the Configuration Set Command

3.3 Configuration Report Command

7	6	5	4	3	2	1	0
Command Class = COMMAND_CLASS_CONFIGURATION							
Command = CONFIGURATION_GET							
Parameter Number							
Reserved					size		

3.3.1 Parameter Number (8 bit)

Refer to description under the Configuration Set Command