Aeon Labs Heavy Duty Smart Switch Gen5

(Z-wave Heavy Duty Smart Switch Gen5)

Change history

Revision	Date	Change Description
1	4/28/2013	Initial draft.
2	4/05/2014	Update Z-wave library

Aeon Labs Heavy Duty Smart Switch Gen5
Engineering Specifications and Advanced Functions for Developers
(V1.22)

Heavy Duty Smart Switch Gen5 is a Z-Wave power binary switch device based on Z-Wave enhanced 232 slave library V6.51.00

Heavy Duty Smart Switch Gen5 has 3 report groups. Report group have nothing to do with ASSOCIATION GROUP. Report group is a group of automatic reports sent at a certain time interval. All the reports in one group will send at the same time. The interval of transmission for each report group can be specified (configurable parameters 111-113). If Heavy Duty Smart Switch Gen5 does not have its association setup, it will not send automatic reports.

As soon as Heavy Duty Smart Switch Gen5 is removed from a z-wave network it will restore itself into factory settings.

1. Library and Command Classes
1.1 SDK: 6.51.00
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_ZWAVEPLUS_INFO V2
- COMMAND_CLASS_SWITCH_BINARY V1
- COMMAND_CLASS_SENSOR_MULTILEVEL V5
- COMMAND_CLASS_METER V3
- COMMAND_CLASS_SWITCH_ALL V1
- COMMAND_CLASS_SCENE_ACTUATOR_CONF V1
- COMMAND_CLASS_SCENE_ACTIVATION V1
- COMMAND_CLASS_CONFIGURATION V1
- COMMAND_CLASS_CRC_16_ENCAP V1
- COMMAND_CLASS_ASSOCIATION_GRP_INFO V1
- COMMAND_CLASS_ASSOCIATION V2
- COMMAND_CLASS_MANUFACTURER_SPECIFIC V2
- COMMAND_CLASS_VERSION V2
- COMMAND_CLASS_POWERLEVEL V1
- COMMAND_CLASS_MARK V1
- COMMAND_CLASS_DEVICE_RESET_LOCALLY V1
- COMMAND_CLASS_HAIL V1

2. Technical Specifications
Operating distance: Up to 100 ft / 30 meters indoors and 300 ft / 100 meters outdoors.
Input: 220V~, 60Hz. (USA Version)
　　　220V~, 50Hz. (EU, AU, BR, CN, IN Version)
Output: 220V~, 60Hz, Max 40A Resistor load. (USA Version）
　　　　220V~, 50Hz, Max 40A Resistor load. (EU Version）
　　　　220V~, 50Hz, Max 40A Resistor load. (IN Version）
　　　　220V~, 50Hz, Max 40AResistor load. (CN Version）

220V~, 50Hz, Max 40A Resistor load. (AU Version）
220V~, 50Hz, Max 40A Resistor load. (BR version)
Operating temperature: -25℃ to 40℃.
Relative humidity: 8-80%

3. Familiarize Yourself with Your Heavy Duty Smart Switch Gen5
3.1 Interface

4. All Functions of Each Trigger
4.1 Function of Z-Wave Button

Trigger	Description
Click one time	**Add Heavy Duty Smart Switch Gen5 into z-wave network:** 1. Insert the Heavy Duty Smart Switch Gen5 to power socket. The Heavy Duty Smart Switch Gen5 LED will blink slowly. 2. Let the primary controller 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 success, Heavy Duty Smart Switch Gen5 LED will be kept turning on. If the LED is still in slow blink, in which you need to repeat the process from step 2. **Remove Heavy Duty Smart Switch Gen5 from z-wave network:** 1. Insert the Heavy Duty Smart Switch Gen5 to power socket. The Heavy Duty Smart Switch Gen5 LED will follow the status (on/off) of its load. 2. Let the primary controller 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 success, Heavy Duty Smart Switch Gen5 LED will blink slowly. If Heavy Duty Smart Switch Gen5 LED still follows the load status, in which you need to repeat the process from step 2.
Press and hold 20 seconds	**Reset Heavy Duty Smart Switch Gen5 to factory Default:** 1. Make sure the Heavy Duty Smart Switch Gen5 has been connected to the power supply. 2. Press and hold the Learn button for 20 seconds. 3. If holding time more than one second, the LED will blink faster and faster. If holding time more than 20seconds, the LED will be on for 2 seconds, it indicates the reset is

success, otherwise please repeat step 2. **Note:** Reset Heavy Duty Smart Switch Gen5 to factory default settings, it will: a), let the Heavy Duty Smart Switch Gen5 to be excluded in Z-Wave network; b), delete the Association setting, power measure value, Scene Configuration settings; c), restore the Configuration settings to the default.							

5. Special Rule of Each Command

5.1 Association Command Class

The Heavy Duty Smart Switch Gen5 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 single-cast (if there is only one Node ID) when Heavy Duty Smart Switch Gen5's level changed.

When the Heavy Duty Smart Switch Gen5 receives the following commands, it will forward the commands to all node IDs (in Group 2). The command will be sent via multicast (if there are more than 2 Node IDs) or single-cast (if there is only one Node ID).

Commands: Basic Set, Switch Binary Set, Scene Activation Set.

5.2 Scene Actuator Conf Command Class

Heavy Duty Smart Switch Gen5 supports 255 Scene ID.

The Scene Actuator Conf Set Command is effective, when the Level>=0 and Level<0x64 or Level=0xff (Level 0x01 ~ 0x63 will be mapped to 0xFF), otherwise, it will be ignored.

The Scene Actuator Configuration Get Command is used to request the settings for a given scene identifier, if Scene ID is not configured, it will be ignored. If the Scene ID Setting Dimming Duration = 0xff then Dimming Duration=0 or Dimming Duration= the value that you set. If Scene ID =0, then the Smart Film Hub will report the currently active scene settings. If the currently active scene settings do not exist, the Smart Film Hub will report "Level =the value of 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 (Level 0x01 ~ 0x63 will be mapped to 0xFF), otherwise, it will be ignored. If the requested Scene ID is not configured, it will be ignored too.

5.4 Configuration 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
3	Current Overload Protection. Load will be closed when the Current more than 39.5A and the time more than 5 seconds (0=disabled, 1=enabled).	0	1
80	Enable to send notifications to associated devices (Group 1) when the state of Heavy Duty Smart Switch Gen5's load changed (0=nothing, 1=hail CC, 2=basic CC report).	0	1
90	Enable selective reporting only when power change reaches a certain threshold or percentage set in 91-92 below. This is used to reduce network traffic. (0 == disable, 1 == enable)	1	1
91	Threshold change in wattage to induce a automatic report (Valid values 0-60000).	50（W）	2
92	Percentage change in wattage to induce a automatic report (Valid values 0-100).	10（%）	1
100	Set 101-103 to default.	0	1
101	Which reports need to be send in Report group 1 (See flags in table below).	4	4
102	Which reports need to be send in Report group 2 (See flags in table below).	8	4
103	Which reports need to be send in Report group 3 (See flags in table below).	0	4
110	Set 111-113 to default.	0	1
111	The time interval of sending Report group 1.	5	4
112	The time interval of sending Report group 2.	120	4
113	The time interval of sending Report group 3.	120	4
200	Partner ID (0= Aeon Labs Standard Product, 1~255= others).	0	1
252	Enable/Disable Lock Configuration (0 =disable, 1 = enable).	0	1

255	1.Value=0x55555555、Default=1、Size=4 Reset to factory default setting and removed from the z-wave network	0	4
	2.Value=1, reset all configuration parameters to default setting.	0	1

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	Auto send Meter REPORT (for kWh) at the group time interval	Auto send Meter REPORT (for watt) at the group time interval	Auto send Meter REPORT (for current) at the group time interval	Auto send Meter REPORT (for voltage at the group time interval

● Reserved

Reserved bits or bytes must be set to zero.

Example:

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);