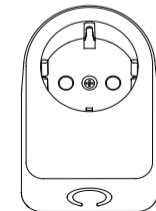




View the expanded manual:
<http://aeot.ec/spprt/switch>

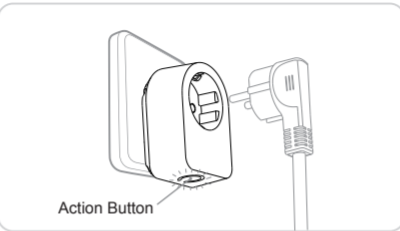


1 Aeotec by Aeon Labs Smart Switch Gen5 or Switch Gen5.

There are appliances that we turn on and off in our homes each day. And, despite the fact that it'd save us money, there are those that we could turn off if only it was easier. Both Aeotec by Aeon Labs' Smart Switch Gen5 and Switch Gen5 package convenience, control and money saving considerations into one, small, plug-in tool. A tool that can be programmed, scheduled, controlled and communicated with from anywhere in the world.

2 Familiarise yourself with your Smart Switch Gen5 or Switch Gen5.

There are 2 plug-in switches that this guide helps you with: Switch and Smart Switch. On the outside, they both look the same - and you can distinguish which yours is via the packaging or the label on the back of your switch. While external differences are minor, inside the technologies we've used have one crucial difference: Smart Switch will report the amount of electricity the devices plugged in to it are using, while Switch will not.



3 Quick start.

Getting your Smart Switch or Switch up and running is as simple as plugging it into a wall outlet and including it to your existing Z-Wave® network. The following instructions tell you how to include your switch to your Z-Wave network using Aeotec by Aeon Labs' Z-Stick or Minimote controllers. If you are using other products as your main Z-Wave controller, please refer to the part of their respective manuals that tells you how to add new devices to your network, the following is the Z-Stick and Minimote controller.

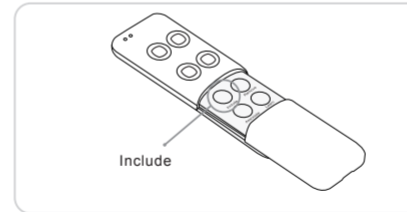
If you're using a Z-Stick:

1. Decide on where you want your switch to be placed and plug it in. Its main LED will begin to blink.
2. If your Z-Stick is plugged into a gateway or a computer, unplug it.
3. Take your Z-Stick to your switch.
4. Press the Action Button on your Z-Stick.
5. Press the Action Button on your switch.
6. If your switch has been successfully included to your network, its LED will no longer blink. If the inclusion was unsuccessful the LED will continue to blink.
7. Press the Action Button on the Z-Stick to take it out of installation mode.



If you're using a Minimote:

1. Decide on where you want your switch to be placed and plug it in. Its main LED will begin to blink.
2. Take your Minimote to your switch.
3. Press the Include Button on your Minimote.
4. Press the Action Button on your switch.
5. If your switch has been successfully included to your network, its LED will no longer blink. If the inclusion was unsuccessful the LED will continue to blink.
6. Press any button on your Minimote to take it out of installation mode.



Now that your switch is up and running, you'll be able to control it directly and also control it from compatible controllers in your Z-Wave network.

At the switch itself you can press the Action Button to turn the power on and off. For control from other Z-Wave devices, please refer to the relevant part of their respective manuals that tell you how to use inclusion mode to add new devices to your network.

4 Advanced functions.

Monitoring your energy usage

If your switch is a Smart Switch, it'll report the energy use of whatever is plugged into it back to a compatible Z-Wave gateway or controller. Your switch can report wattage usage or kilowatt-hour (kWh) usage.

If your main controller supports it, the energy consumption will be displayed within its corresponding interface. Please refer to the manual of your main controller for specific information and instructions on monitoring, accessing and interpreting the data collected by your Smart Switch.

Removing your switch from a Z-Wave network

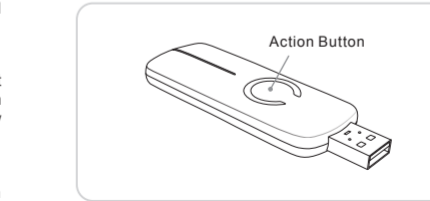
Your switch can be removed from your Z-Wave network at any time. You'll need to use your Z-Wave network's main controller to do this. The following instructions tell you how to do this using Aeotec by Aeon Labs' Z-Stick and Minimote controllers.

If you are using other products as your main

Z-Wave controller, please refer to the part of their respective manuals that tells you how remove devices from your network.

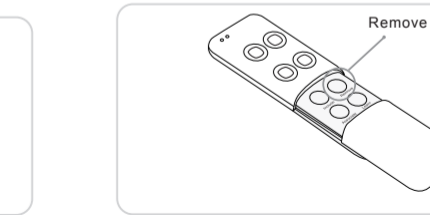
If you're using a Z-Stick:

1. If your Z-Stick is plugged into a gateway or a computer, unplug it.
2. Take your Z-Stick to your switch.
3. Hold the Action Button on your Z-Stick for 3 seconds.
4. Press the Action Button on your switch.
5. If your switch has been successfully removed from your network, its LED will blink. If the removal was unsuccessful its LED will not blink.
6. Press the Action Button on the Z-Stick to take it out of removal mode.



If you're using a Minimote:

1. Take your Minimote to your switch.
2. Press the Remove button on your Minimote.
3. Press the Action Button on your switch.
4. If your switch has been successfully removed from your network, its LED will blink. If the removal was unsuccessful its LED will not blink.
5. Press any button on your Minimote to take it out of removal mode.



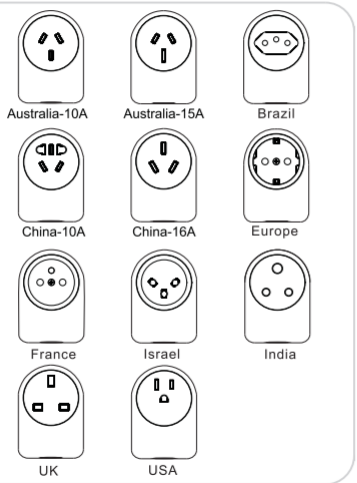
5 Technical specifications.

Model number: ZW075

Operating Distance: Up to 500 feet/150 metres outdoors.

| Version | Input | Working band |
|---------|---------------------|--------------|
| AU | 230V 50Hz, Max: 10A | 921.42MHz |
| | 230V 50Hz, Max: 15A | |
| BR | 220V 60Hz, Max: 10A | 921.42MHz |
| CN | 220V 50Hz, Max: 10A | 868.40MHz |
| | 220V 50Hz, Max: 16A | |
| EU | 230V 50Hz, Max: 16A | 868.42MHz |
| FR | 230V 50Hz, Max: 16A | 868.42MHz |
| IL | 230V 50Hz, Max: 16A | 916.02MHz |
| IN | 230V 50Hz, Max: 6A | 865.20MHz |
| UK | 230V 50Hz, Max: 13A | 868.42MHz |
| US | 120V 60Hz, Max: 15A | 908.42MHz |

6 Plug specifications



6 Warranty.

Aeon Labs warrants to the original purchaser of Products that for the Warranty Period (as defined below), the Products will be free from material defects in materials and workmanship. The foregoing warranty is subject to the proper installation, operation and maintenance of the Products in accordance with installation instructions and the operating manual supplied to Customer. Warranty claims must be made by Customer in writing within thirty (30) days of the manifestation of a problem. Aeon Labs' sole obligation under the foregoing warranty is, at Aeon Labs' option, to repair, replace or correct any such defect that was present at the time of delivery, or to remove the Products and to refund the purchase price to Customer.

The "Warranty Period" begins on the date the Products is delivered and continues for 12 months.

Any repairs under this warranty must be conducted by an authorized Aeon Labs service representative and under Aeon Labs' RMA policy. Any repairs conducted by unauthorized persons shall void this warranty.

Excluded from the warranty are problems due to accidents, acts of God, civil or military authority, civil disturbance, war, strikes, fires, other catastrophes, misuse, misapplication, storage damage, negligence,

electrical power problems, or modification to the Products or its components.

Aeon Labs does not authorize any person or party to assume or create for it any other obligation or liability in connection with the Products except as set forth herein.

Aeon Labs will pass on to Customer all manufacturers' Material warranties to the extent that they are transferable, but will not independently warrant any Material.

Customer must prepay shipping and transportation charges for returned Products, and insure the shipment or accept the risk of loss or damage during such shipment and transportation. Aeon Labs will ship the repaired or replacement products to Customer freight prepaid.

Customer shall indemnify, defend, and hold Aeon Labs and Aeon Labs' affiliates, shareholders, directors, officers, employees, contractors, agents and other representatives harmless from all demands, claims, actions, causes of action, proceedings, suits, assessments, losses, damages, liabilities, settlements, judgments, fines, penalties, interest, costs and expenses (including fees and disbursements of counsel) of every kind (i) based upon personal injury or death or injury to property to the extent any of the foregoing is proximately caused either by a defective product (including strict liability in tort) or by the

negligent or willful acts or omissions of Customer or its officers, employees, subcontractors or agents, and/or (ii) arising from or relating to any actual or alleged infringement or misappropriation of any patent, trademark, mask work, copyright, trade secret or any actual or alleged violation of any other intellectual property rights arising from or in connection with the products, except to the extent that such infringement exists as a result of Aeon Labs' manufacturing processes.

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THE INDEMNITY AND WARRANTY IN ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER INDEMNITIES OR WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

FCC NOTICE (for USA)

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available.

Certifications (regional)



Z-Wave and Z-Wave Plus are registered trademarks of Sigma Designs and its subsidiaries in the United States and other countries

Version: 501007500001-AB

www.aeotec.com



Aeon Labs Smart Switch Gen5
Engineering Specifications and Advanced Functions for Developers
(V2.22)

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

The Smart Switch has 3 Configuration report groups. Configuration report group is differ from ASSOCIATION GROUP. Report group is a group that you can set automatic reports to be sent at a certain interval time. All the reports will be sent at the same time in one Configuration report group. The interval of transmission for each report group can be specified (configurable parameters 111-113). If the Smart Switch does not set association nodes, it will not send automatic reports.

As soon as Smart Switch is removed from a z-wave network it will be restored into default factory setting.

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

| | Included Non-Secure | Included Secure |
|-------------------------|---|--|
| Node Info Frame | COMMAND_CLASS_ZWAVEPLUS_INFO V2 COMMAND_CLASS_SWITCH_BINARY V1 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_FIRMWARE_UPDATE_MD V2 COMMAND_CLASS_POWERLEVEL V1 COMMAND_CLASS_SECURITY V1 COMMAND_CLASS_MARK V1 COMMAND_CLASS_DEVICE_RESET_LOCALLY V1 COMMAND_CLASS_HAIL V1 | COMMAND_CLASS_ZWAVEPLUS_INFO V2 COMMAND_CLASS_VERSION V2 COMMAND_CLASS_MANUFACTURER_SPECIFIC V2 COMMAND_CLASS_SECURITY V1 COMMAND_CLASS_CRC_16_ENCAP V1 COMMAND_CLASS_MARK V1 COMMAND_CLASS_DEVICE_RESET_LOCALLY V1 COMMAND_CLASS_HAIL V1 |
| Security Command | – | COMMAND_CLASS_SWITCH_BINARY V1 COMMAND_CLASS_METER V3 |

| | |
|-------------------------------|--|
| Supported Report Frame | 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_FIRMWARE_UPDATE_MD V2 COMMAND_CLASS_POWERLEVEL V1 |
|-------------------------------|--|

2. Technical Specifications

Operating distance: Up to 550 feet / 150 meters outdoors.

Input: 120V~, 60Hz. (USA Version)

230V~, 50Hz. (EU, AU Version)

Output: 120V~, 60Hz, Max 15A Resistor load. (USA Version)

230V~, 60Hz, Max 16A Resistor load. (EU Version)

230V~, 60Hz, Max 10A/15A Resistor load. (AU Version)

Operating temperature: 0°C to 40°C.

Relative humidity: 8-80%

4. All Functions of each Trigger

4.1 Function of Action Button

| Trigger | Description |
|---------------------------|---|
| Click one time | <p>Add Smart Switch into an existing z-wave network:</p> <ol style="list-style-type: none"> 1. Insert the Smart Switch to power socket, The Smart Switch 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 Action Button. 4. If the inclusion is success, Smart Switch LED will stop the slow blink. If the LED is still in slow blink, please repeat the process from step 2. <p>Remove Smart Switch from an existing z-wave network:</p> <ol style="list-style-type: none"> 1. Insert the Smart Switch to power socket, the Smart Switch LED will follow the status (on/off) of its load. 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 exclusion is success, Smart Switch LED will blink slowly. If Smart Switch LED still follows the state of load, please repeat the process from step 2. |
| Press and hold 20 seconds | <p>Reset Smart Switch to Factory Default:</p> <ol style="list-style-type: none"> 1. Make sure the Smart Switch has been connected to the power supply. 2. Press and hold the Action 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 reset success, otherwise please repeat step 2. <p>Note: Reset Smart Switch to factory default settings will: a), remove Smart Switch from Z-Wave network state;</p> |

| | |
|--|---|
| | b), delete the Association setting, power measure value and Scene Configuration settings; c), restore the configuration settings to the default. |
|--|---|

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 | 0x0700 (ICON_TYPE_GENERIC_ON_OFF_POWER_SWITCH) |
| User Icon Type | 0x0700 (ICON_TYPE_GENERIC_ON_OFF_POWER_SWITCH) |

5.2 Association Command Class

The Smart Switch supports 2 Association groups.

- a. Group 1 is assigned to the Lifeline association group and every device has 5 nodes to associate. When the switch is turned on or off using the action button, the switch will send a basic report of its status to the nodes in association group 1. To change what kind of signal is sent to the nodes in group 1, please see the detailed description of configuration parameter 80.
- b. The Node IDs in Group 1 will receive Meter REPORT (for Watt/ KWH that can be configured in parameter 101~103) which is sent via single-cast (if there are more than 1 Node ID) when the automatic report has been configured.
- c. When the product's load state is changed by receiving a controlling Basic Set CC/Switch Binary Set CC/ Scene Activation Set CC, which will lead to send the Basic Set CC/Switch Binary Set CC /Scene Activation Set CC to nodes in group 2.

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: RetransmitSwitchCC

5.4 Scene Actuator Conf Command Class

The Smart Switch supports max 255 Scene ID.

The Scene Actuator Conf Set command is effective, when only Level \geq 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 Smart Switch will report currently the activated scene settings. If the currently activated scene settings do not exist, the Smart Switch will reports Level = currently load status and Dimming Duration=0

5.5 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.

5.6 Configuration Set Command Class

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

Parameter Number Definitions (8 bit):

| Parameter Number Hex / Decimal | Description | Default Value | Size |
|--------------------------------------|---|---------------|------|
| 0x02 (2) | <p>Make Smart Switch blink.</p> <p>Configuration Value 1: 1-255</p> <p>Configuration Value 1 is to specify the time that Smart Switch need blink, The unit is Second;</p> <p>Configuration Value 2: 1-255</p> <p>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 Smart Switch will open 0.5 second, close 0.5 second, and repeat for 14 times.</p> | 0x0F0A | 2 |

| | | | |
|------------|--|---------------|---|
| 0x03 (3) | Current Overload Protection. Load will be closed when the Current overrun (US: 15.5A, other country: 16.2A) and the time more than 2 minutes (0=disabled, 1=enabled). | 0 | 1 |
| 0x50 (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 |
| 0x5A (90) | Enables/disables parameter 91 and 92 (1=enabled, 0=disabled). | 1 | 1 |
| 0x5B (91) | The value here represents minimum change in wattage that will induce an automatic report (Meter Report for wattage) when the change of the current power is more/less than the threshold in wattage. | 25 (W) | 2 |
| 0x5C (92) | The value here represents minimum change in wattage percent will induce an automatic report (Meter Report for wattage) when the change of the current power is more/less than the threshold in percentage. | 5 (%) | 1 |
| 0x65 (101) | Which reports need to send in Report group 1 (See flags in table below or refer to the examples of the last page). | 0x00 00 00 04 | 4 |
| 0x66 (102) | Which reports need to send in Report group 2 (See flags in table below). | 0x00 00 00 08 | 4 |
| 0x67 (103) | Which reports need to send in Report group 3 (See flags in table below). | 0 | 4 |
| 0x6F (111) | The time interval of sending Report group 1 (Valid values 0x01-0x7FFFFFFF). | 0x00 00 01 2C | 4 |
| 0x70 (112) | The time interval of sending Report group 2 (Valid values 0x01-0x7FFFFFFF). | 0x00 00 02 58 | 4 |
| 0x71 (113) | The time interval of sending Report group 3 (Valid values 0x01-0x7FFFFFFF). | 0x00 00 02 58 | 4 |
| 0xC8 (200) | Partner ID (0= Aeon Labs Standard Product, 1= Others). | 0 | 1 |

| | | | |
|------------|---|---|---|
| 0xFC (252) | Enable/disable Configuration Locked. Value=0, all configuration parameters are configurable. Value=1, all configuration parameters are not configurable (Locked). | 0 | 1 |
| 0xFE (254) | Device Tag. | 0 | 2 |
| 0xFF (255) | Reset configuration parameters to default setting. Value=0x55555555, it will reset the product to default factory setting and be excluded from Z-wave network. Value=1, it only will reset the all configuration parameters to default setting. The other values will be reserved. | 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 |

Examples:

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

1), Set report group 1 to send Meter CC (Watts) automatically

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

2), Set the interval time of Meter report to be 12 minutes in report group 1

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

3). Set the association to node "1"

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

b. Reset all configuration parameters to default settings.

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