Aeotec

Dual Nano Switch with Power Metering

SKU: AEOEZW132

Quickstart

This is a **secure On/Off Power Switch** for **Europe**. To run this device please connect it to your mains power supply. Turn the primary controller of Z-Wave network into inclusion mode, short press the product Action button that you can find on the product□s housing.

Important safety information

Please read this manual carefully. Failure to follow the recommendations in this manual may be dangerous or may violate the law. The manufacturer, importer, distributor and seller shall not be liable for any loss or damage resulting from failure to comply with the instructions in this manual or any other material. Use this equipment only for its intended purpose. Follow the disposal instructions. Do not dispose of electronic equipment or batteries in a fire or near open heat sources.

What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section.

Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.

If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to www.z-wave.info.

Product Description

Aeotec Dual Nano Switch is a Z-Wave Smart Switch specifically used to enable Z-Wave command and control (on/off) of any wall switches. It can report immediate wattage consumption or kWh energy usage over a period of time. In the event of power failure, non-volatile memory retains all programmed information relating to the units operating status. It can connect to 2 external manual switches to control the load ON/OFF independently. Its surface has a pin socket, which can be used for connecting to the touch panel, so you can also use the touch panel to control the Dual Nano Switch. The Dual Nano Switch is also a security Z-Wave device and supports Over The Air (OTA) feature for the products firmware upgrade.

Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state.** Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

Reset to factory default

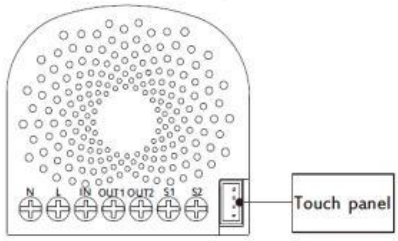
This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

Press and hold the Action button that you can find on the product□s housing for 20 seconds and then release. This procedure should only be used when the primary controller is missing or inoperable.

Safety Warning for Mains Powered Devices

ATTENTION: only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

Installation



Notes for the wire connection ports:
N ? Power input for neutral
L ? Power input for live
IN ? Input for load power supply
OUT1 ? Output for load 1
OUT2 ? Output for load 2
S1 ? External switch control for load 1
S2 ? External switch control for load 2

Inclusion/Exclusion

On factory default the device does not belong to any Z-Wave network. The device needs to be **added to an existing wireless network** to communicate with the devices of this network. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

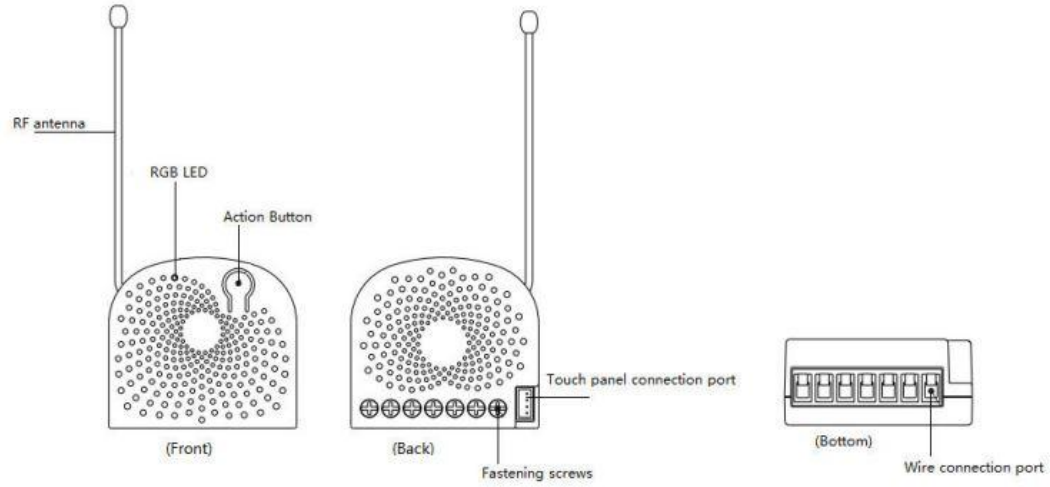
Inclusion

1. Install the device according to the instructions.
2. Press the button 2 times quickly on the Dual Nano Switch.

Exclusion

1. Press the button once on Dual Nano Switch.

Product Usage



Click one time 1 Send out a Node info without Security CC in command class list

Quick press 2 times Send out a Node info that contains Security CC in the command

Quick press 4 times Activate the automatic identification mode for external switch S1. The blue LED will fast blink to indicate the Nano Switch is in this mode.

Quick press 6 times Activate the automatic identification mode for external switch S1. The green LED will fast blink to indicate the Nano Switch is in this mode.

Quick trouble shooting

Here are a few hints for network installation if things dont work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.
3. Remove all dead devices from associations. Otherwise you will see severe delays.
4. Never use sleeping battery devices without a central controller.
5. Dont poll FLIRS devices.
6. Make sure to have enough mains powered device to benefit from the meshing

Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called association. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called association groups and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive the same wireless command wireless command, typically a 'Basic Set' Command.

Association Groups:

Group Number	Maximum Nodes	Description
1	5	Z-Wave Plus Lifeline.When the load state of Dual Nano Switch (turn on/off the load) is changed, the Hail CC and Basic Report (configured by parameter 80) can be sent to the associated nodes in this group.
2	5	Forward the Basic Set, Switch All, Scene Activation Set to associated nodes in Group 2 when the Dual Nano Switch receives the Basic Set, Switch All, Scene Activation Set commands from main controller. (E.g. Send/forward Basic Set to control the other nodes in association Group 2)
3	5	Send Basic Set (configured by parameter 81) to the associated nodes in Group 3 when the external switch S1 is operated.Note: The Switch Mode of external switch S1 should be identified successfully, which means that the value of Configuration parameter 120 should be non-zero, then the Basic Set can be sent to the associated nodes in Group 3 via triggering the S1 switch.
4	5	Send Basic Set (configured by parameter 82) to the associated nodes in Group 4 when the external switch S2 is operated.Note: The Switch Mode of external switch S2 should be identified successfully, which means that the value of Configuration parameter 121 should be non-zero, then the Basic Set can be sent to the associated nodes in Group 3 via triggering the S2 switch.

Configuration Parameters

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the function better to user needs or unlock further enhanced features.

IMPORTANT: Controllers may only allow configuring signed values. In order to set values in the range 128 ... 255 the value sent in the application shall be the desired value minus 256. For example: To set a parameter to 200 it may be needed to set a value of 200 minus 256 = minus 56. In case of a two byte value the same logic applies: Values greater than 32768 may needed to be given as negative values too.

Parameter 3: Current Overload Protection.

Output Load will be turned off automatically after 30 seconds and if the current overrun 1.5A.
Size: 1 Byte, Default Value: 1

Setting	Description
0	Disable
1	Enable

Parameter 4: Overheat protection.

Output Load will be turned off automatically after 30 seconds and if the temperature of product inside exceeds 100 u2103.
Size: 1 Byte, Default Value: 0

Setting	Description
0	Disable
1	Enable

Parameter 20: Configure the output status after re-power on it.

Configure the output status after re-power on it.
Size: 1 Byte, Default Value: 0

Setting	Description
0	Last status
1	Always on
2	Always off

Parameter 80: To set which notification would be sent to the associated devices (Group 1)

To set which notification would be sent to the associated devices (Group 1) when the state of Nano Dimmeru2019s load is changed.
Size: 1 Byte, Default Value: 0

Setting	Description
0	Send Nothing
1	Send Hail CC
2	Send Basic CC report
3	Send Hail CC when using the manual switch to change the load state.

To set which notification would be sent to the associated nodes in association Group 3 when using the external switch 1 to switch the loads.
Size: 1 Byte, Default Value: 1

Setting	Description
0	Send Nothing
1	Send Basic Set CC

Parameter 82: To set which notification would be sent to the associated nodes in association group 4
To set which notification would be sent to the associated nodes in association Group 4 when using the external switch 2 to switch the loads.
Size: 1 Byte, Default Value: 1

Setting	Description
0	Send Nothing
1	Send Basic Set CC

Parameter 83: Configure the state of LED when it is in 3 modes
Configure the state of LED when it is in 3 modes (Energy mode, Momentary indicate mode, Night light mode)
Size: 1 Byte, Default Value: 0

Setting	Description
0	Energy mode. The LED will follow the status (on/off).
1	Momentary indicate mode. When the state of Switch load changed, the LED will follow the status (on/off) of its load, but the LED will turn off after 5 seconds if there is no any switch action.
2	Night light mode. The LED will remain ON state.

Parameter 84: Set the ON/OFF time of the LED when it is in Night light mode.
Set the ON/OFF time of the LED when it is in Night light mode.
Size: 1 Byte, Default Value: 301991936

Setting	Description
0 - 60	The minute time of OFF
256 - 316	The hour time of OFF
65536 - 65596	The minute time of ON
16777216 - 16777276	The hour time of ON

Parameter 86: Set appointment 1
Set the ON time of output load.
Size: 4 Byte, Default Value: 8327680

Setting	Description
0 - 60	The minute value of ON time
256 - 316	The hour value of ON time
65536 - 65543	The day value (Mon to Sun)
16777215	Disable the setting.
16777216	Enable the setting.

Parameter 87: Set appointment 2
Set the OFF time of output load.
Size: 4 Byte, Default Value: 8327680

Setting	Description
0 - 60	The minute value of ON time
256 - 316	The hour value of ON time
65536 - 65543	The day value (Mon to Sun)
16777215	Disable the setting.
16777216	Enable the setting.

Parameter 90: Enables/disables parameter 91 and 92 below:
Enables/disables the function of parameter 91 and 92.
Size: 1 Byte, Default Value: 0

Setting	Description
0	Disable
1	Enable

Parameter 91: Set the threshold value of wattage.

Threshold change in wattage (in terms of wattage) to induce an automatic report.

Size: 2 Byte, Default Value: 25

Setting	Description
0 - 60000	The thershold value range is 0 to 60000

Parameter 92: Set the threshold value of wattage.

Threshold change in wattage (in terms of percentage) to induce an automatic report.

Size: 1 Byte, Default Value: 5

Setting	Description
0 - 100	The thershold value range is 0 to 100

Parameter 100: Set parameter 101-103 to default value.

Set parameter 101-103 to default value.

Size: 1 Byte, Default Value: 0

Setting	Description
0	Reset the parameter 101-103

Parameter 101: To set which reports need to be sent in Report group 1.

To set which reports need to be sent in Report group 1.

Size: 4 Byte, Default Value: 0

Setting	Description
1	Send Meter Report of energy (kWh)
2	Send Meter Report of wattage (W)
4	Send Meter Report of voltage (V)
8	Send Meter Report of current (A)
256	Send Multi Channel Meter Report of wattage (W) on Channel 1
512	Send Multi Channel Meter Report of wattage (W) on Channel 2
2048	Send Multi Channel Meter Report of energy (kWh) on Channel 1
4096	Send Multi Channel Meter Report of energy (kWh) on Channel 2
65536	Send Multi Channel Meter Report of voltage (V) on Channel 1
131072	Send Multi Channel Meter Report of voltage (V) on Channel 2
524288	Send Multi Channel Meter Report of current (A) on Channel 1
1048576	Send Multi Channel Meter Report of current (A) on Channel 2

Parameter 102: To set which reports need to be sent in Report group 2.

To set which reports need to be sent in Report group 2.

Size: 1 Byte, Default Value: 0

Setting	Description
1	Send Meter Report of energy (kWh)
2	Send Meter Report of wattage (W)
4	Send Meter Report of voltage (V)
8	Send Meter Report of current (A)
256	Send Multi Channel Meter Report of wattage (W) on Channel 1
512	Send Multi Channel Meter Report of wattage (W) on Channel 2
2048	Send Multi Channel Meter Report of energy (kWh) on Channel 1
4096	Send Multi Channel Meter Report of energy (kWh) on Channel 2
65536	Send Multi Channel Meter Report of voltage (V) on Channel 1
131072	Send Multi Channel Meter Report of voltage (V) on Channel 2
524288	Send Multi Channel Meter Report of current (A) on Channel 1
1048576	Send Multi Channel Meter Report of current (A) on Channel 2

Parameter 103: To set which reports need to be sent in Report group 3.
To set which reports need to be sent in Report group 3.
Size: 1 Byte, Default Value: 0

Setting	Description
1	Send Meter Report of voltage (V)
2	Send Meter Report of current (A)
4	Send Meter Report of wattage (W)
8	Send Meter Report of energy (kWh)
256	Send Multi Channel Meter Report of wattage (W) on Channel 1
512	Send Multi Channel Meter Report of wattage (W) on Channel 2
2048	Send Multi Channel Meter Report of energy (kWh) on Channel 1
4096	Send Multi Channel Meter Report of energy (kWh) on Channel 2
65536	Send Multi Channel Meter Report of voltage (V) on Channel 1
131072	Send Multi Channel Meter Report of voltage (V) on Channel 2
524288	Send Multi Channel Meter Report of current (A) on Channel 1
1048576	Send Multi Channel Meter Report of current (A) on Channel 2

Parameter 110: Set parameter 111-113 to default value.
Set parameter 111-113 to default value.
Size: 1 Byte, Default Value: 0

Setting	Description
0	Reset the parameter 111-113

Parameter 111: Set the interval of automatic report for Report group 1.
Set the interval of automatic report for Report group 1.
Size: 4 Byte, Default Value: 10

Setting	Description
1 - 2147483647	The range of interval time is 1 to 2147483647.

Parameter 112: Set the interval of automatic report for Report group 2.
Set the interval of automatic report for Report group 2.
Size: 4 Byte, Default Value: 600

Setting	Description
1 - 2147483647	The range of interval time is 1 to 2147483647.

Parameter 113: Set the interval of automatic report for Report group 2.
Set the interval of automatic report for Report group 3.
Size: 4 Byte, Default Value: 600

Setting	Description
1 - 2147483647	The range of interval time is 1 to 2147483647.

Parameter 120: Configure the external switch mode for S1.

Configure the external switch mode for S1.

Size: 1 Byte, Default Value: 0

Setting	Description
0	Enter automatic identification mode
1	2-state switch mode
2	3 way switch mode
3	Momentary push button mode

Parameter 121: Configure the external switch mode for S2.

Configure the external switch mode for S2.

Size: 1 Byte, Default Value: 0

Setting	Description
0	Enter automatic identification mode
1	2-state switch mode
2	3 way switch mode
3	Momentary push button mode

Parameter 122: Set the control destination for external switch

Set the control destination for external switch

Size: 1 Byte, Default Value: 3

Setting	Description
1	control the output loads of itself.
2	control the other nodes
3	control the output loads of itself and other nodes.

Parameter 252: Lock/unlock configuration parameters

Lock/unlock configuration parameters.

Size: 1 Byte, Default Value: 0

Setting	Description
0	Unlock
1	Lock

Parameter 255: Reset the Dual Nano Switch

Reset the Dual Nano Switch to factory default.

Size: 4 Byte, Default Value: 0

Setting	Description
0	Reset all configuration parameters to factory default setting
1431655765	Reset to factory default setting and removed from the z-wave network

Technical Data

Dimensions	0.0445000x0.0410000x0.0200000 mm
Weight	35 gr
Hardware Platform	ZM5101
EAN	1220000015418
IP Class	IP 20
Voltage	230 V
Load	10 A
Device Type	On/Off Power Switch
Network Operation	Always On Slave
Z-Wave Version	6.51.09
Certification ID	ZC10-17035485
Z-Wave Product Id	0x0086.0x0003.0x0084
Z-Wave Scene Type	Scene
Supported Meter Type	Electric Energy
Firmware Updatable	Updatable by Consumer by RF
Electric Load Type	Dimmable LEDElectronic with/without DimmingFluorescent (Non-Dimming)IncandescentInductiveLEDMagnetic with/without Dimming
Switch Type	Toggle
Frequency	Europe - 868,4 Mhz
Maximum transmission power	5 mW

Supported Command Classes

- Switch All
- Association Grp Info
- Association V2
- Basic
- Clock
- Configuration
- Device Reset Locally
- Firmware Update Md V2
- Manufacturer Specific V2
- Meter V3
- Multi Channel V4
- Multi Channel Association V2
- Notification V4
- Powerlevel
- Scene Activation
- Scene Actuator Conf
- Security
- Switch Binary
- Version V2
- Zwaveplus Info V2

Controlled Command Classes

- Basic

Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways,Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of adding new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **Wakeup Notification** — is a special wireless message issued by a Z-Wave device to announces that is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.
