

Z-Wave 2-Gang In Wall Switch

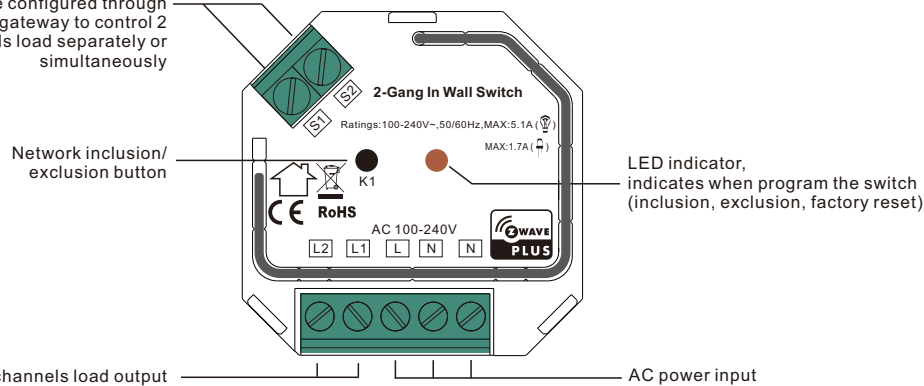
09.ZV09SAPS2C.04740



Important: Read All Instructions Prior to Installation

Function introduction

2 channels switch input, can be configured through gateway to control 2 channels load separately or simultaneously



Product Data

Z-Wave Frequency	868.42 MHz (EU)/908.42 MHz (US)/921.42 MHz (ANZ)
Input Voltage	AC100-240V
Output Voltage	AC100-240V
Max. Load Current	Resistive loads: 5.1A/CH, Capacitive/inductive loads: 1.7A/CH
Operating temperature	0 to 40°C
Relative humidity	8% to 80%
Dimensions	45.5x45x20.3mm

Compatible Load Types			
Load Symbol	Load Type	Maximum Load	Remarks
	Dimmable LED lamps	390W/CH @ 230V 180W/CH @ 110V	Due to variety of LED lamp designs, maximum number of LED lamps is further dependent on power factor result when connected to switch.
	Dimmable LED drivers	390W/CH @ 230V 180W/CH @ 110V	Maximum permitted number of drivers is 390W divided by driver nameplate power rating.
	Incandescent lighting, HV Halogen lamps	1170W/CH @ 230V 560W/CH @ 110V	
	Low voltage halogen lighting with electronic transformers	390W/CH @ 230V 180W/CH @ 110V	

Safety & Warnings

- ? DO NOT install with power applied to device.
- DO NOT expose the device to moisture.

Quick Start

How to install:

- Step 1: power on the Z-Wave in wall switch.
- Step 2: activate inclusion mode on your Z-Wave controller.
- Step 3: activate inclusion mode of the in wall switch by triple press the network inclusion/exclusion button. The in wall switch will be included to Z-Wave network.

Product Description

The 2-gang in wall switch is an universal, Z-Wave Plus V2 compatible device that can work with various types of light sources. The device allows for controlling on/off of lights. The module may be controlled wirelessly, through the Z-Wave network primary controller, or through the switch keys connected to it. The switch can also control other Z-Wave devices using "ON" "OFF" control commands and activate scenes in Gateways. In addition, the device is equipped with power metering (voltage, current, energy and power) and over current protection.

The in wall switch can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

If the user's gateway also supports smartstart, add the device by scanning the QR code, Smartstart allows users to quickly add devices to the gateway by scanning the device's QR code. After adding the device by scanning QR code, wait for a while or reset power of the device, the device will be added to the gateway automatically. Please find the QR code on the casing of the device.

The encryption mode that the switch supports is S2 Unauthenticated. When the device is being included into a Z-Wave network, you can use your primary controller/gateway to enable encryption mode or disable encryption. (The primary controller/gateway shall support encryption mode configuration). The switch supports OTA and can update firmware wirelessly.

Operation

Installation Guide

Please read carefully the enclosed user manual before installation of the in wall switch, in order to ensure an error-free functioning.

ATTENTION: Prior to the assembly of the product, the voltage network has to be switched OFF and ensured against re-switching.

Inclusion (adding to a Z-Wave network)

1. Set primary controller/gateway into inclusion mode (Please refer to your primary controller's manual on how to turn your controller into inclusion).
2. Power on the in wall switch and set it into inclusion mode. There are two methods to set the switch into inclusion mode:
 - 1) Triple press the network inclusion/exclusion button, it will set the switch into inclusion mode. 30 seconds timeout if there is no reply from the Z-Wave primary controller, repeat the operation.
 - 2) When the value of configuration parameter 8 is set as 1, triple press the switch connected to S1, it will set the in wall switch into inclusion mode. 30 seconds timeout if there is no reply from the Z-Wave primary controller, repeat the operation.
3. The in wall switch will be added to the Z-Wave network.

Exclusion (removing from a Z-Wave network)

1. Set the primary controller/gateway into exclusion mode (Please refer to your primary controllers manual on how to set your controller into exclusion).
2. Power on the in wall switch and set it into exclusion mode. There are two methods to set the switch into exclusion mode:

- 1) Triple press the network inclusion/exclusion button, it will set the in wall switch into exclusion mode. 30 seconds timeout if there is no reply from the Z-Wave primary controller, repeat the operation.
- 2) When the value of configuration parameter 8 is set as 1, triple press the switch connected to S1, it will set the in wall switch into exclusion mode. 30 seconds timeout if there is no reply from the Z-Wave primary controller, repeat the operation.
3. The in wall switch will be removed from the Z-Wave network.

Factory Reset

Press and hold down network inclusion/exclusion button for over 10 seconds, the in wall switch will be reset to factory defaults.

Secene Control

Users can configure scenes using command class SCENE_ACTUATOR_CONF_SET, and activate the scenes using command class SCENE_ACTIVATION_SET.

Activate Scenes Using Switch S1 S2

Users can configure configuration parameter 9 to decide whether to send scene activation command using command class CENTRAL_SCENE_NOTIFICATION.

The scene ID and key attribute supported by switch S1 and S2 are as follows:

Switch Number	Support Action type	Scene ID	Key Attribute
S1	Short press once	1	Key pressed once
	Short press twice	1	Key pressed twice
	Short press 3 times	1	Key pressed 3 times
	Press and hold, release	1	Key held down and released
S2	Short press once	2	Key pressed once
	Short press twice	2	Key pressed twice
	Short press 3 times	2	Key pressed 3 times
	Press and hold, release	2	Key held down and released

Default configuration of CENTRAL_SCENE_CONFIGURATION_SET is Slow Refresh = 1 (send Key Held Down every 55s when the switch is pressed and held down).

Association

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). In case the event happens all devices stored in the respective association group will receive a common wireless command.

Association Groups:

Rootpoint

Association Groups	Group Name	Max Nodes	Description
Group 1	Lifeline	5	<ol style="list-style-type: none"> 1. When press and hold down "K1" button for 10S to reset the device, send "Device Reset Locally Notification" to associated devices of this group to report factory reset information. 2. When over load detected, send "NOTIFICATION_REPORT" to associated devices of this group. 3. Send METER_REPORT actively. 4. When action of S1 and S2 is detected, send CENTRAL_SCENE_NOTIFICATION. 5. SWITCH_BINARY_REPORT.

Endpoint 1

Association Groups	Group Name	Max Nodes	Description
Group 1	Lifeline	0	SWITCH_BINARY_REPORT

Endpoint 2

Association Groups	Group Name	Max Nodes	Description
Group 1	Lifeline	0	SWITCH_BINARY_REPORT

Set and unset associations:

(Note: All association information will be cleared automatically once the in wall switch is excluded from a network.)

Set association by operating primary controller/gateway to send packets to the in wall switch:

The primary controller/gateway sends packets to the switch using "COMMAND_CLASS_ASSOCIATION" or "COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION".

Node Information Frame

The Node Information Frame is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this it may be needed for certain network operations to send out a Node Information Frame.

How to send out Node Information Frame:

When the in wall switch is set to inclusion/exclusion mode again, it will send out Node Information Frame, there are 2 kinds of operation as follows:

1. triple press the K1 button, the in wall switch will be set to inclusion/exclusion mode, then send out Node Information Frame.

2. When the in wall switch is under inclusion mode, there are two kinds of operation:

- 1) Triple press K1 button, the switch will be set to inclusion mode again, and send out Node Information Frame.
- 2) Power off and power on the switch, it will be set to inclusion mode automatically, and send out Node Information Frame.

Technical Data

Wireless Range	up to 100 m outside, on average up to 40 m inside buildings
SDK	7.13.6.0
Explorer Frame Support	Yes
Device Type	On/Off Power Switch
Generic Device Class	GENERIC_TYPE_SWITCH_BINARY
Specific Device Class	SPECIFIC_TYPE_POWER_SWITCH_BINARY
Role Type	Always On Slave (AOS)

Endpoint 1 device type :

GENERIC_TYPE_SWITCH_BINARY/SPECIFIC_TYPE_POWER_SWITCH_BINARY

Endpoint 2 device type:

GENERIC_TYPE_SWITCH_BINARY/SPECIFIC_TYPE_POWER_SWITCH_BINARY

Note: the rootpoint mirrored by endpoint 1 has the same function as endpoint 1.

SUPPORTED COMMAND CLASS

Root Device Command List

Node Info		Support S2/S0
COMMAND_CLASS_ZWAVEPLUS_INFO	V2	
COMMAND_CLASS_SECURITY	V1	
COMMAND_CLASS_SECURITY_2	V1	
COMMAND_CLASS_TRANSPORT_SERVICE	V2	
COMMAND_CLASS_SUPERVISION	V1	
COMMAND_CLASS_SWITCH_BINARY	V2	YES
COMMAND_CLASS_ASSOCIATION	V2	YES
COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1	YES
COMMAND_CLASS_VERSION	V2	YES
COMMAND_CLASS_MANUFACTURER_SPECIFIC	V2	YES
COMMAND_CLASS_DEVICE_RESET_LOCALLY	V1	YES
COMMAND_CLASS_POWERLEVEL	V1	YES
COMMAND_CLASS_CONFIGURATION	V1	YES
COMMAND_CLASS_FIRMWARE_UPDATE_MD	V4	YES
COMMAND_CLASS_NOTIFICATION	V8	YES
COMMAND_CLASS_METER	V3	YES
COMMAND_CLASS_MULTI_CHANNEL	V4	YES
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	V3	YES
COMMAND_CLASS_SCENE_ACTIVATION	V1	YES
COMMAND_CLASS_SCENE_ACTUATOR_CONF	V1	YES
COMMAND_CLASS_CENTRAL_SCENE_V3	V3	YES
COMMAND_CLASS_WINDOW_COVERING	V1	YES

Endpoint 1 and Endpoint 2 Command List

Node Info		Support S2/S0
COMMAND_CLASS_ZWAVEPLUS_INFO	V2	
COMMAND_CLASS_SECURITY	V1	
COMMAND_CLASS_SECURITY_2	V1	
COMMAND_CLASS_SUPERVISION	V1	
COMMAND_CLASS_SWITCH_BINARY	V2	YES
COMMAND_CLASS_ASSOCIATION	V2	YES
COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1	YES
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	V3	YES
COMMAND_CLASS_SCENE_ACTIVATION	V1	YES
COMMAND_CLASS_SCENE_ACTUATOR_CONF	V1	YES
COMMAND_CLASS_WINDOW_COVERING	V1	YES

Notification Report

Notification Type	Triggerring Event
NOTIFICATION_TYPE_POWER_MANAGEMENT(08)	POWER_MANAGEMENT_OVERCURRENT_DETECTED(06)

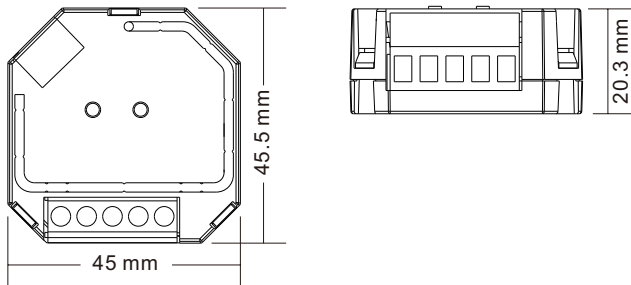
Over Current Alarm: When connecting to resistive load, over current value is 8.1A.

Configuration Command Class

Parameter	Size	Description(decimal numeral)	Default Value
0x02(2)	1	Whether to report SWITCH_BINARY_REPORT when relay state changes 0: disable to report 1: enable to report	1
0x04(4)	1	Switch state after reset power 0 – shut off load 1 – turn on load 2 – save load state before reset power	2
0x05(5)	1	Enable/disable over current protection 0: disable 1: enable	1
0x07(7)	1	Configuration of external buttons S1 and S2 control. Value=0 Short press S1 to switch ON/OFF L1. Press and hold down S1 or release S1 to switch ON/OFF L1. Short press S2 to switch ON/OFF L2. Press and hold down S2 or release S2 to switch ON/OFF L2. Value=1 Short press S1 to switch ON/OFF L1. When S1 is pressed and held down, then released, not processed. Short press S2 to switch ON/OFF L2. When S2 pressed and held down, then released, not processed. Value=2 Press and hold down S1 or release S1 to switch ON/OFF L1. When S1 short pressed, not processed. Press and hold down S2 or release S2 to switch ON/OFF L2. When S2 short pressed, not processed. Value=3 Short press S1 or S2 to switch ON/OFF of both L1 and L2 simultaneously. When S1 or S2 pressed and held down, not processed Value=4 Press and hold down S1 or release S1 to switch ON/OFF of both L1 and L2 simultaneously. When S1 short pressed, not processed. Press and hold down S2 or release S2 to switch ON/OFF of both L1 and L2 simultaneously. When S2 short pressed, not processed.	0

0x08(8)	1	Enable/disable to add the device to or remove it from a Z-Wave network through button S1. Please refer to the parts of inclusion and exclusion for details. 0: disable 1: enable	1
0x09(9)	1	Enable/disable to send scene activation command CENTRAL_SCENE_NOTIFICATION_V3 when the switches S1 and S2 are pressed. 0: disable to send for action of both S1 and S2 1: enable to send for action of both S1 and S2 2: enable to send for action of only S1 3: enable to send for action of only S2	1
0x0A(10)	1	Power change absolute threshold report, unit is W 0: disable absolute threshold comparison function 1-100: value of the power change absolute threshold	10
0x0B(11)	1	Current change absolute threshold report, unit is 0.1A 0: disable absolute threshold comparison function 1-10: value of the current change absolute threshold	1
0x0C(12)	1	Voltage change absolute threshold report, unit is 1V 0: disable absolute threshold comparison function 1-10: value of the voltage change absolute threshold	2
0x0E(14)	4	Time cycle to report energy consumption value (unit is KWH), U, I, W actively 60-2678400 (31 days), value of the time cycle, unit is S.	3600 (1 hour)

Product Dimension



Wiring Diagram

Notes for the diagrams:

L - terminal for live lead

N - terminal for neutral lead

S1 - terminal for switch key No. 1 (enable to set the device into inclusion/exclusion mode)

S2 - terminal for switch key No. 2

L1 - output terminal no. 1 for light load

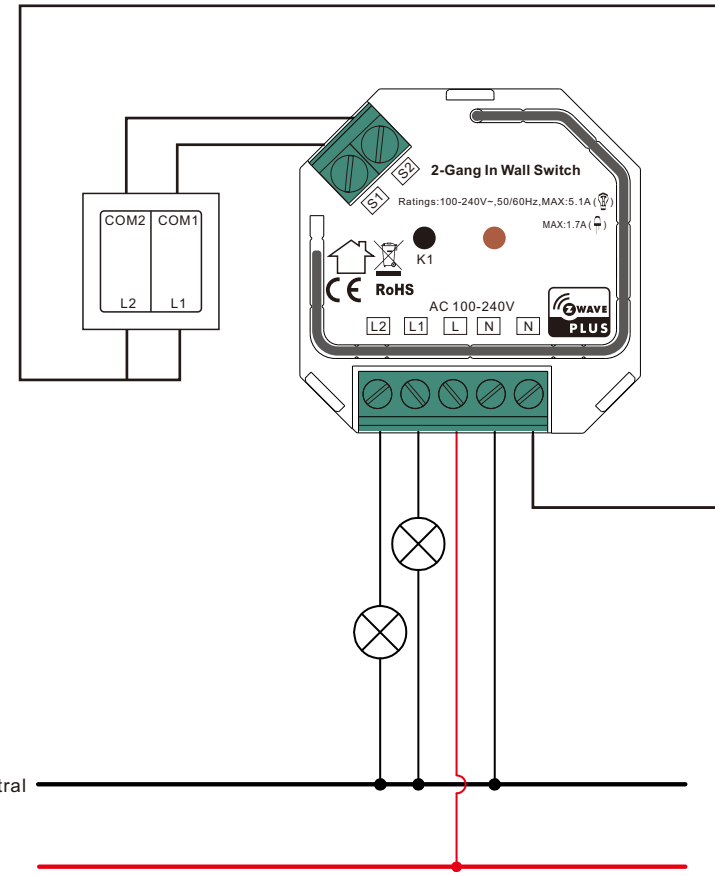
L2 - output terminal no. 2 for light load

K1 - inclusion/exclusion button (used to add or remove a device from the system)

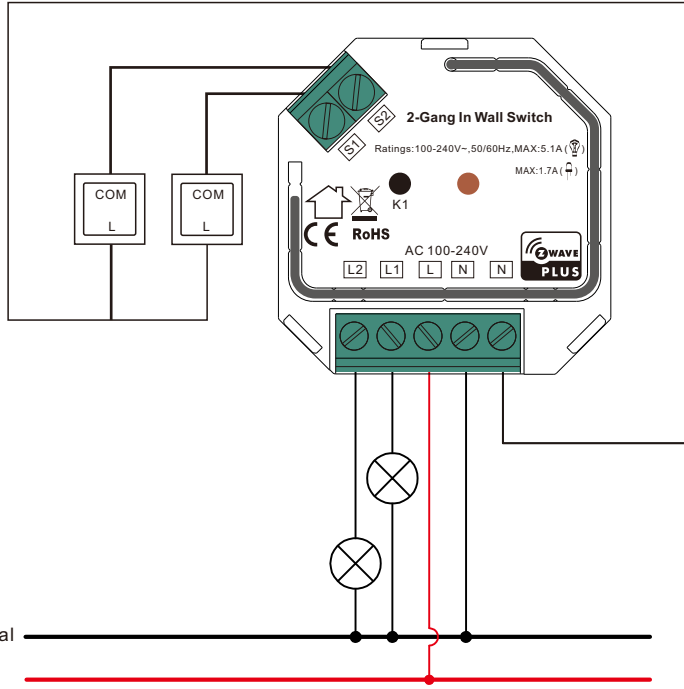
Supported Switch Type: Push Switch

1. Wiring Method 1: External Switches Control through Neutral Lead

1.1. With 1PC 2-Gang 1-Way Switch

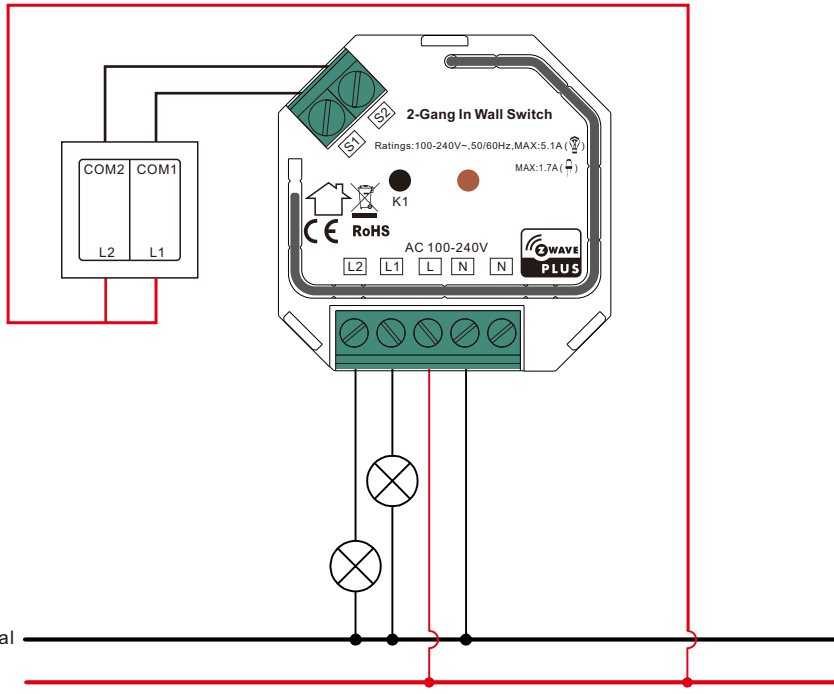


1.2. With 2PCS 1-Gang 1-Way Switches

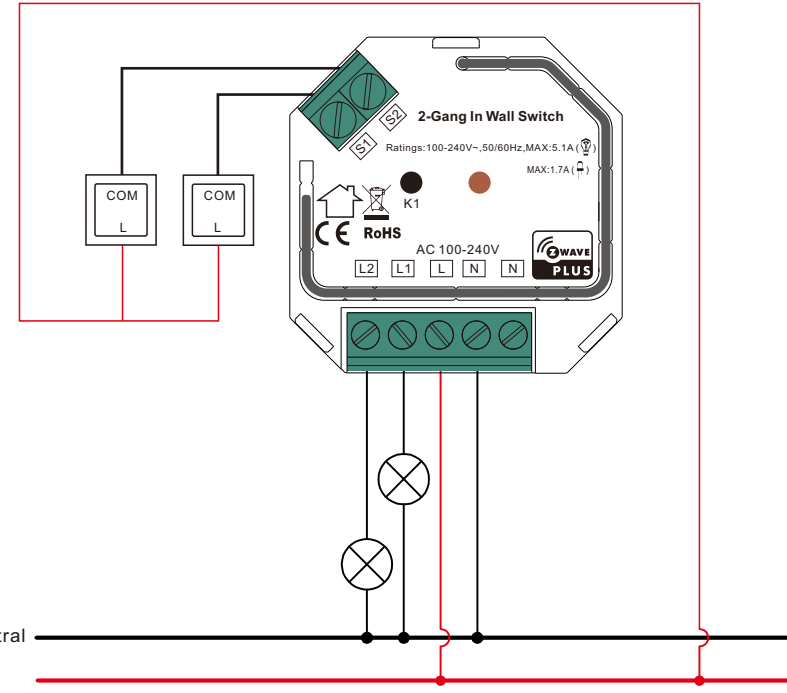


2. Wiring Method 2: External Switches Control through Live Lead

2.1. With 1PC 2-Gang 1-Way Switches



2.2. With 2PCS 1-Gang 1-Way Switches



Product Dimension

