Wall Switch

(ZWA038-A)

Engineering Specifications

This product can be operated in any Z-Wave™ network with other Z-Wave Plus™ certified devices from other manufacturers. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network. Each module is designed to act as a repeater, which will re-transmit a radio frequency (RF) signal by routing the signal around obstacles and radio dead spots to ensure that the signal is received at its intended destination. ZWA038-A is a security enabled Z-Wave Plus device. A security Enabled Z-Wave Plus Controller must be used in order to fully utilize the product.

1 Library and Command Classes

1.1 Embedded SDK

v 7.13.9

1.2 Device Type

Generic Type: Switch Binary
Specific Type: Not Used

1.3 Role Type

Always On Slave (AOS): ROLE_TYPE_SLAVE_ALWAYS_ON (0x05)

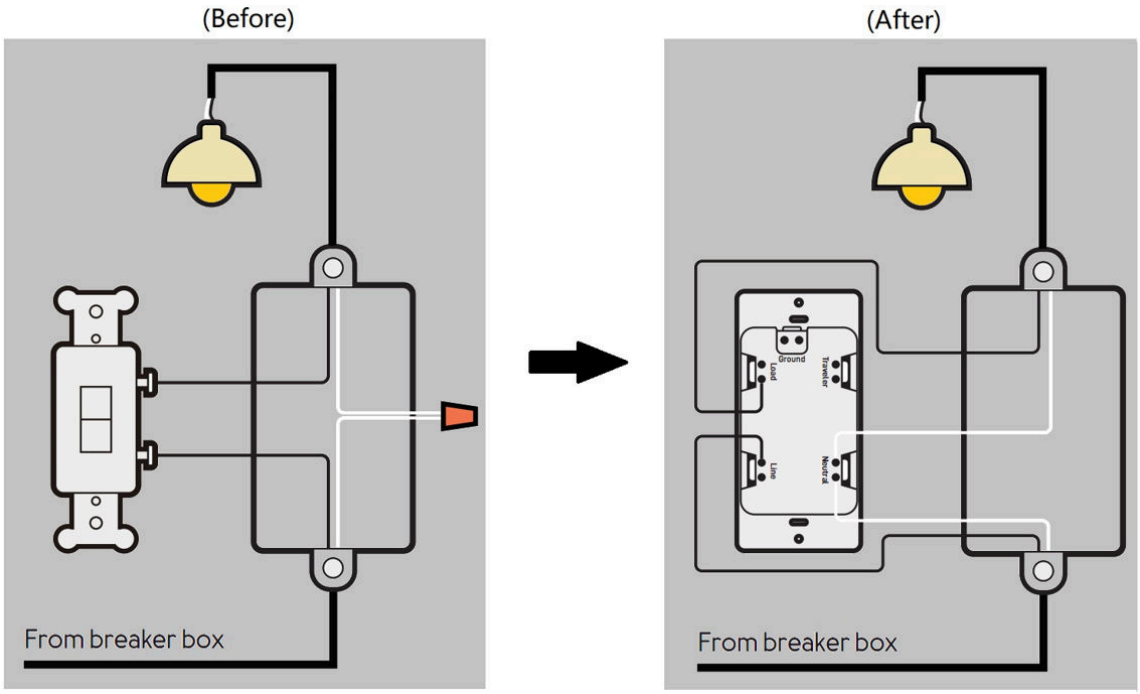
1.4 Command Class

Command Class Name	Version	Required Security Class
Z-Wave Plus Info	V2	none
Security 2	V1	none
Supervision	V1	none
Transport Service	V2	none
Association	V3	highest granted
Association Group Information	V3	highest granted
Multi Channel Association	V4	highest granted
Version	V3	highest granted
Manufacturer Specific	V2	highest granted

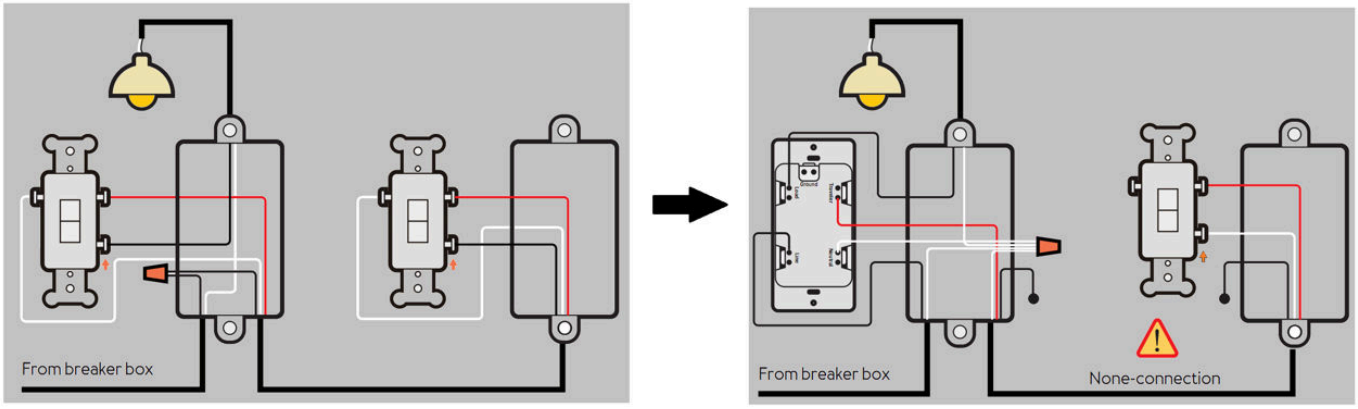
Device Reset Locally	V1	highest granted
Power Level	V1	highest granted
Indicator	V3	highest granted
Firmware Update Meta Data	V5	highest granted
Configuration	V4	highest granted
Central Scene	V3	highest granted
Switch Binary	V2	highest granted
Scene Activation	V1	highest granted
Scene Actuator Configuration	V1	highest granted

2 Installation wiring diagram

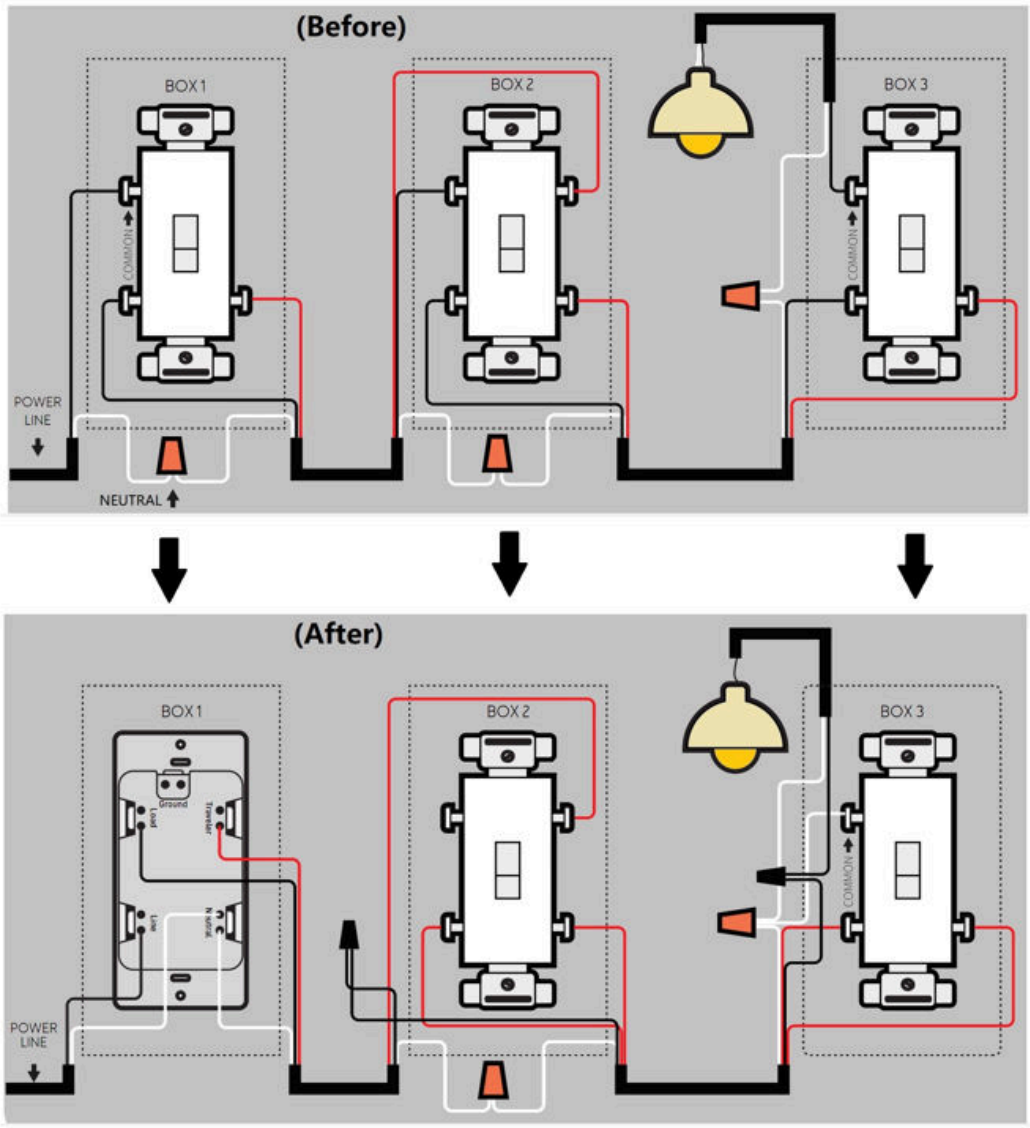
2.1 Single pole wiring



2.2 3-Way wiring



2.3 4-Way wiring



2 Z-Wave Network Operation

Functions	Action Button		Description
Inclusion	1x tap	Out of network	Send NIF for network pairing/ inclusion (white LED quick flashes). If pairing is successful, the LED will turn to solid green for 2s, then deactivates.
		In network	Trigger to send Central Scene 1x tap scene.
Central Scene	2x tap	In network	Trigger to send Central Scene 2x tap scene.
Exclusion	3x tap	In network	Send NIF for network unpairing/ exclusion (purple LED flashes).
		Out of network	Trigger to send Central Scene 3x tap scene.
Toggle parameter 86	4x tap	Top button	Toggle parameter 86 from value 0 - 100%.
Toggle parameter 84	5x tap		Toggle parameter 84 from value 0 - 9.
Toggle parameter 85	6x tap		Toggle parameter 85 from value 0 - 9
Toggle parameter 83	7x tap		Toggle Parameter 83 from values 0, 1, 2, 3, 4.
Toggle parameter 121	4x tap	Bottom button	Toggle parameter 121 from value 0, 1, 2, 3.
Toggle parameter 122	5x tap		Toggle parameter 122 from value 0, 1, 2.
Toggle parameter 20	6x tap		Toggle parameter 20 from value 0, 1, 2
Toggle parameter 120	10x tap		Toggle Parameter 120 from value 0, 1, 2
Toggle parameter 252	11x tap	Top button	Toggle Parameter 252 from value 0, 1
Central Scene	Press and hold for 1 - 15s		Trigger to send Central Scene hold scene.
Central Scene	Release		Trigger to send Central Scene release scene.
Nothing	Press and hold for 16 – 19s		Flash red LED rapidly.
Factory reset	Press and hold for 20s		Manual Factory reset -> Send gateway RESET DEVICE LOCALLY **Note:** When the LED turns into Blue, then release the button, the LED will be solid Blue for 2 seconds, during the 2 seconds, tap the button again, it will start the factory reset process, then return to factory reset LED status. Please use this procedure only when the network primary controller is missing or otherwise inoperable.

1) This device must be used in conjunction with a Security 2 Enabled Z-Wave Controller in order to fully utilize all implemented functions.

3 Association Groups

The device supports 5 association groups and every group supports max 5 associated nodes.
Group 1 is Lifeline group, all nodes associated in this group will receive the messages sent by device through Lifeline.
Group 2-5 are controlling groups.

The Command Class supported by each association group is shown in the tablebelow:

ID	Name	Node Count	Profile	Function
1	Lifeline	5	General: Lifeline	**Device Reset Locally Notification:** Issued when Factory Reset is performed. **Indicator Report:** Issued when included successfully. **Switch Binary Report:** Issued when output status is changed. (Determined by Parameter 80). **Basic Report:** Issued when output status is changed (Determined by Parameter 80). **Central Scene Notification:** Issued when button press or hold or release. (Determined by Parameter 121).
2	Top button set ON/OFF	5	Control: Key 1	**Basic Set or Switch Binary Set:** Issued when Top button press. (The command class is determined by Parameter 82)
3	Bottom button set ON/OFF	5	Control: Key 2	**Basic Set or Switch Binary Set** Issued when Bottom button press. (The command class is determined by Parameter 82)
4	External switch set ON/OFF	5	Control: Key 3	**Basic Set or Switch Binary Set** Issued when External Switch press. (The command class is determined by Parameter 82).
5	Top and bottom button set ON/OFF	5	Control: Key 4	**Basic Set or Switch Binary Set** Issued when Top or Bottom button press. (The command class is determined by Parameter 82).

4 Basic Command Map

- Basic CC is mapped to Switch Binary Command Class.
- Basic Set is mapped to Switch Binary Set.

5 Indicator Command Class

Indicator ID	Property ID
0x50 (NODE IDENTIFY)	0x03(ON OFF PERIOD)
0x50 (NODE IDENTIFY)	0x04(ON OFF CYCLES)
0x50 (NODE IDENTIFY)	0x05(ONE TIME ON OFF PERIOD)

6 Manufacturer Information

Parameter	Value
Manufacturer ID 1	0x03
Manufacturer ID 2	0x71
Product Type ID 1	0x01
Product Type ID 2	0x03
Product ID 1	0x00
Product ID 2	0x26

7 Configuration

User can change the default settings by the below configuration parameters. After device reset, all these parameters will be set to their default values.

Parameter Number	Name	Information	Size	MIN	MAX	Default	Description
20	Power Restore	Status after power failure.	1	0	2	2	0- return to OFF 1- return to ON 2- returns to last known state when repowered
40	Auto Turn Off Timer	Timer that auto turn off once turned on.	4	0	65535	0	0- disabled 1- Auto turn off after 1s once turned on 65535 - Auto turn off after 65535s once turned on
41	Auto Turn On Timer	Timer that auto turn on once turned off.	4	0	65535	0	0- disabled 1- Auto turn on after 1s once turned off 65535 - Auto turn on after 65535s once turned off
80	Instant Status Report	The command for status report.	1	0	2	2	0- Nothing 1- Basic Report 2- Binary Switch Report
82	Association Control Settings	Setting command for association group.	1	1	2	1	1- Basic Set 2- Binary Switch Set
83	Led Indicator Settings	Select the indicator function for output.	1	0	4	2	0- disable completely 1- Momentary blink 2- LED follows status of output 3- LED follows opposite status of output. 4- LED always ON, blink when output state changes
84	Led Indicator Color For Output	Select the indicator color for output.	1	0	9	9	0- Disabled 1- Red 2- Blue 3- Green 4- Pink 5- Cyan 6- Purple 7- Orange 8- Yellow 9- White

85	Led Indicator Color For Scene	Select the indicator color for scene.	1	0	9	2	0- Disabled 1- Red 2- Blue 3- Green 4- Pink 5- Cyan 6- Purple 7- Orange 8- Yellow 9- White
86	Led Brightness	Setting the brightness of indicator.	1	0	100	60	0- Disable 1- 1% .. ... 100 - 100%
119	External Switch Scene	Enable or disable the scene function of external(3-way) switch.	1	0	1	1	0- Disable 1- enable
120	External Switch Type	Select the external(3-way) switch's type.	1	0	2	0	0- toggle on or off only 1- NO momentary switch 2- NC momentary switch
121	Output Control	Enable or disable output.	1	0	3	3	0- disable completely 1- enable local control 2- enable central scene 3- enable local and central scene
122	Button Function	Select the paddle button functions.	1	0	2	0	0- up/ON, down/OFF 1- down/ON, up/OFF 2- toggle (up or down are the same)
123	Report Behavior	Select behavior for report and indicator when output is disable.	1	0	1	0	0- report on/off status and change LED indicator when parameter 121 is set to 0 or 2 1- Don't report on/off status is pressed and parameter 121 is set to 0 or 2
252	Lock/ Unlock parameters setting	Lock/ Unlock parameters setting	1	0	1	0	0- Unlock. (Default). 1- Lock. All other parameters are locked, its value cannot be changed via configuration set CC and button presses. (Apart from this parameter setting and tap*11 button action).

8 Security Network

This device is a security enabled Z-Wave Plus product that is able to use encrypted Z-Wave Plus messages to communicate to other security enabled Z-Wave Plus products.

The device supports the security function with S2 encrypted communication. The device will auto switch to the security mode when the device included with a security controller. In the security mode, the commands will use security command class wrapped to communicate with others, otherwise the device will not response anycommands.

This device supports security levels are listed in belowtable:

Security Levels	Support(Yes/No)
SECURITY_KEY_S0	No

SECURITY_KEY_S2_UNAUTHENTICATED	Yes
SECURITY_KEY_S2_AUTHENTICATED	Yes

9 SmartStart

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity. You can find the QR code on the bottom of the product, like this:

And the DSK information will be shown like this:
DSK: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

10 Specifications

Power Supply	AC120V, 60Hz
Max Amperage	Max 15A
Max Wattage	1800W (US)
Max Standby Power	0.8W
LED	RGB LED
Communication Frequency	908.40MHz, 916.00MHz (US)
Communication Range	Up to 70m+ indoors (line of sight) or 150m outdoors.
Communication Certification	Z-Wave Plus v2 with SmartStart
Operational Temperature	0 - 40℃/ 32 - 104℉
Operating Humidity	8% to 80%