

**NZW31-S**

# **Instructions**

# Thank You From the Founders.

Thank you for taking the chance on us. We are truly humbled to be a part of your smart home journey and know that out of the many companies out there, you trusted us to make your life simpler and we don't take that for granted. Our mission is to provide the best products, with the best customer support, at the best prices. Sure, every company says that... but we'd like to think we're different. Why? Well, because we have our own smart homes, with our own desires to make our life simpler through home automation.

Thank you so much for your trust in us and welcome to smart lighting with Inovelli.

Eric H. - Founder/CEO

Eric M. - Founder/CTO

Handwritten signatures of Eric H. and Eric M. in black ink. Eric H.'s signature is on the left, and Eric M.'s signature is on the right.

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For the most recent  
instructions visit:

[inov.li/nzw31s](http://inov.li/nzw31s)

# Navigating this Manual

We designed this manual as if we were installing the switch ourselves. We suggest reviewing the full manual before beginning the installation process. There are four areas this manual covers:

1. Getting to know your switch
2. Figuring out your wiring
3. Connecting to your hub/gateway
4. Configuring your switch (optimize the settings)

As we continue to work with hub manufacturers, and improve our products. It may be necessary to periodically update this manual. You can always find the latest version of this manual by visiting: [inov.li/nzw31s](http://inov.li/nzw31s)

**Quick Setup & Inclusion.**

# Quick Setup Notes

We get it, you're ready to go. No need to flip through the manual, you want the abridged version. **This section assumes you have your switch wired correctly and the blue LED Bar is lit up.**

It also assumes you know how to enter the Z-Wave pairing mode on your hub/gateway (and have a Z-Wave compatible hub/gateway).

To see which hubs are compatible, please visit: [inov.li/nzw31shubs](http://inov.li/nzw31shubs)

While these instructions likely won't change, for the most up-to-date instructions, we recommend visiting: [inov.li/nzw31sQS](http://inov.li/nzw31sQS)

# Including Your Switch

**Pairing:** First put your hub into pairing mode - once power is restored to the switch it will auto-include to the hub (please note that you have 30 seconds before auto-inclusion times out). If auto-inclusion does not work (or times out), you can tap up (A) six (6) times within a couple seconds.

If the switch is unsuccessful during inclusion, you can exclude (reset) the switch by putting your gateway in exclusion mode and pressing up (A) six (6) times. Once exclusion is finished, you can try to include again.

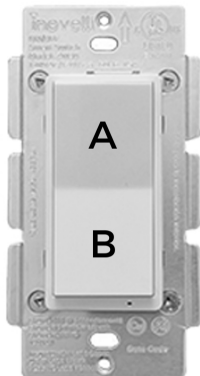


# Getting to Know Your Switch

Please use this page to get to know your smart switch.

**A. Light On:** Tap 1x to turn on your light or hold to dim. In addition, it can be used to activate scene control (multi-taps and holds) where up to 5 scenes can be added\*. Finally, it can be used for quick tap programming ([inov.li/nzw31sQT](http://inov.li/nzw31sQT)).

**B. Light Off:** Tap 1x to turn off your light or hold to dim. In addition, it can be used to activate scene control (multi-taps and holds) where up to 5 scenes can be added\*. Finally, it can be used for quick tap programming ([inov.li/nzw31sQT](http://inov.li/nzw31sQT)).



**Wiring.**

# Wiring Notes

Due to the number of ways these switches can be wired, all schematics are housed online and you can access the schematics by visiting: [inov.li/nzw31swiring](http://inov.li/nzw31swiring)

To work your way through this section, first read the warnings, then familiarize yourself with the vernacular used. Finally, keep notes as you go through the first three (3) steps as you will use them to determine whether or not your wiring is compatible.

Finally, please do not attempt to install these switches if you are unfamiliar with electrical as serious injury can occur.

# Safety Reminder

Consult a qualified electrician if necessary as **we are unable to give wiring advice outside of schematics.**

If you are unsure how electrical circuits work, please do not try installing this device. As exciting as it is to have a smart switch installed, it can be dangerous and even life-threatening if you do not install it correctly. Improper installation will void the product's warranty.

Please read through the warnings on the next few pages before installing your switch. We can't stress enough how dangerous installation can be if you don't know what you're doing.

# Warnings

**Caution - Please Read:** This device (NZW31-S) is intended for installation in accordance with the National Electric Code and local regulations in the United States, or the Canadian Electrical Code and local regulations in Canada. If you are unsure or uncomfortable about performing this installation consult a qualified electrician. This product is made for indoor use only and is not designed or approved for use on power lines other than 120VAC, 60Hz, single phase. Attempting to use this NZW31-S on non-approved power lines may have hazardous consequences.

**Attention - Information importante:** Cet appareil (NZW31-S) est conçu pour être installé conformément au « National Electric Code » et aux réglementations locales aux

États-Unis, ou au Code canadien de l'électricité et aux réglementations locales canadiennes. Si vous ne vous sentez pas à l'aise ou qualifiés pour effectuer cette installation, veuillez consulter un électricien qualifié. Ce produit est conçu pour une utilisation intérieure uniquement et n'est pas conçu ou approuvé pour une utilisation avec une ligne électrique ayant un voltage autre que 120 VCA, 60 Hz, monophasé. L'utilisation du NZW31-S avec une ligne électrique non approuvée peut avoir des résultats dangereux.

**Other Warnings:** Risk of Fire, Electrical Shock & Burns

**Autres avertissements:** Risque d'incendie, de choc électrique et de brûlures

# Warnings (Continued)

**Recommended Installation Practices:** Use only indoors or in an outdoor rated box. Turn off the circuit breaker. Installing this switch and module with the power on will expose you to dangerous voltages. Connect only copper or copper-clad wire to the switch or module.

To reduce the risk of overheating and possible damage to other equipment, do not install to control a receptacle, a fluorescent lighting fixture or a transformer supplied appliance and do not use the NZW31-S load output to control no more than

- 500 Watts (Incandescent)
- 300 Watts (LED)
- 150 Watts (CFL)

The above assumes no heat sink tabs are removed. If you are removing the heat sink tabs, please see max wattage specs on page 48.

To install your On/Off Switch (NZW31-S), you'll need to identify the following four wires:

- **Line:** Usually black and can also be called the, "hot" or "live" and carries 120VAC electricity into the electrical box
- **Neutral\*:** Usually white and is commonly daisy chained from box to box, usually appearing as a white wire bundle.
- **Load:** Usually black, blue or red
- **Ground:** Bare copper wire or metal fixture (if grounded)

\* Neutral is mandatory. See page 27 for additional details.

# Warnings (Continued)

If you are having difficulties identifying wires, please consult an electrician.

**Pratiques d'installation recommandées:** Utiliser uniquement à l'intérieur ou à l'extérieur dans une boîte adaptée aux conditions extérieures. Éteignez le disjoncteur. L'installation de cet interrupteur et de ce module alors que le courant est allumé vous exposera à des tensions dangereuses. Connectez uniquement un fil de cuivre ou gainé de cuivre au commutateur ou au module.

Pour réduire le risque de surchauffe et de dommages possibles à d'autres équipements, n'installez pas pour contrôler une prise, un luminaire fluorescent ou un appareil alimenté par un transformateur et n'utilisez pas la sortie de charge NZW31-S pour

contrôler pas plus que ce qui est indiqué.

Pour installer votre interrupteur marche/arrêt (NZW31-S), vous devrez identifier les quatre fils suivants :

- **Ligne:** généralement noire et peut également être appelée « chaud » ou « sous tension » et transporte l'électricité 120 VCA dans le boîtier électrique
- **Neutre:** habituellement blanc et connecté en série d'une boîte à l'autre, les fils sont habituellement attachés ensemble dans la boîte électrique
- **Charge:** habituellement noire, bleue ou rouge
- **Mise à terre:** fil de cuivre nu ou boîtier métallique (si celui-ci est mis à la terre)

# Warnings (Continued)

Si vous rencontrez des difficultés à identifier les fils, veuillez consulter un électricien.

**Équipement médical:** Veuillez ne pas utiliser cet interrupteur pour contrôler de l'équipement médical ou nécessaire à la survie. Les appareils Z-Wave ne doivent jamais être utilisés pour contrôler la marche or l'arrêt d'équipement médical et/ou nécessaires à la survie.

# Vocabulary

Before we go into actual steps, it's important to be familiar with the vernacular used on the following pages. Please see below:

- **Line:** This is your hot wire (120V) - aka: "live" wire
- **Load:** This is the wire that runs from your light switch to what you're controlling (ie: bulb(s), fan, etc)
- **Neutral:** This is the wire that carries current back to the power source (you may not have this in your house)
- **Single-Pole:** One switch controlling one or more load(s)
- **Multi-Way:** Refers to 3-Way (2 switches, 1 load), 4-Way (3 switches, 1 load), or 5-Way setups (4 switches, 1 load)
- **Toggle ("Dumb") Switch:** Refers to your existing switch (ie: the switch(es) you had before replacing with your smart switch(es))
- **Aux Switch:** Refers to the Inovelli Aux Switch ([inov.li/aux](http://inov.li/aux))

# Step 1 - Determine Wiring Type

The first step is to determine how many switches control your load(s) (aka: light(s)).

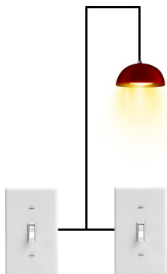
Using the diagram on the next page, please determine what your wiring type is and remember this selection:

- **Single-Pole:** One switch controls one load (load may contain more than one light, etc).
- **Multi-Way:** Two or more switches control one load (load may contain more than one light, etc). We will use the term, "multi-way" instead of 3-Way, 4-Way, 5-Way, etc as the programming of the switch is the same regardless.



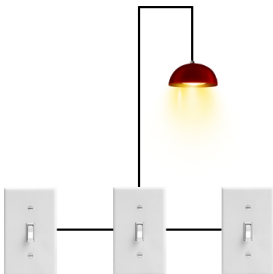
### **Single-Pole**

One switch controls one (or more) load(s).



### **Multi-Way**

Two or more switches control one (or more) load(s).



# Step 2 - Determine Switch Layout

**NOTE:** If you determined in Step #1 that your switch is single-pole, you can skip this step. This step is for multi-way setups only.

Using the diagram on the next page, please determine what your wiring layout is and remember this selection:

- **Smart Switch + Toggle Switch:** One smart switch and one (or more) toggle/existing switch (one already in your wall).
- **Smart Switch + Aux Switch:** One smart switch and one (or more) aux/add-on switch (Model #: AUX01 or [inov.li/aux](http://inov.li/aux)).
- **Smart Switch + Smart Switch:** Two (or more) smart switches.

See [inov.li/nzw31slayout](http://inov.li/nzw31slayout) for the pro/cons of each setup. You may not mix/match (ie: Smart + Aux + Toggle) in the same circuit.

**Switch Layout (Circle One):** Toggle, Aux, or Smart Switch(es)



### **Smart + Toggle Switch**

One Inovelli smart switch & one (or more) toggle/existing switch.



### **Smart + Aux Switch**

One Inovelli smart switch & one (or more) Inovelli aux switch (AUX01).



### **Smart Switches**

Two (or more) Inovelli smart switches.

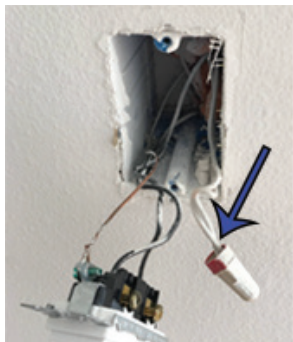
# Step 3 - AC Power Type

In this step, we will determine if you have a neutral wire, which is typically white and located in the back in your switch gang-box (typically in a bundle of wires tied together).

Here are some signs you may have a neutral wire:

- If your house was built in the mid-1980's or later
- If there is an outlet (receptacle) near the switch
- If switches are in the same gang-box (regardless of the year your house was built)

See the next page for details on checking for a neutral wire.



After turning off your breaker, pull out the switches (**WARNING:** there may be multiple circuits in one gang-box -- please ensure all circuits are turned off). Check the back of your gang-box for a bundle of white wires. These are typically neutrals.

# Step 4 - Compatibility Check

In this step, we will determine if your switch can be installed with your current wiring setup. If not, you can see some alternate solutions on how to accomplish compatibility.

Taking the answers you circled in Steps 1-3, please see the chart on the next page to see if your switch is compatible with your setup.

**Example:** If you circled, "Multi-Way", "Toggle Switch" and "Neutral", you will see that your wiring is compatible. However, if you circled, "Multi-Way", "Toggle Switch" and "No Neutral", you will see that your wiring is not compatible and you will need to purchase purchase a different switch or run a neutral wire to your location.

Wiring Type	Switch Layout	Power Type	Supported
Single-Pole		Neutral	Yes
		No Neutral	No
Multi-Way (3+ Way)	Toggle (Switch)	Neutral	Yes
		No Neutral	No
	Aux (Switch)	Neutral	No
		No Neutral	No
	Smart (Switch)	Neutral	Yes
		No Neutral	No

**IMPORTANT:** This switch cannot be used with an auxiliary switch or in a non-neutral setting. If you do not have a neutral wire and would prefer an aux switch, please purchase our Red or Blue Series 2-1 Switches.

# Step 5 - Switch Installation

The last step is to physically install your switch. After you've determined your wiring type, switch layout, AC Power type and whether or not you have a compatible setup, it's time to look at the wiring schematics and install your switch.

As mentioned, there are many different ways your switch can be wired that if we posted them here, we'd have an encyclopedia of a manual, so all of our schematics are housed online. [UL specifies the tightening torque for the screws to be 0.8 N.m \(7.08 lbf-in\).](#)

Keep note of your answers from the prior steps and go to: [inov.li/nzw31swiring](http://inov.li/nzw31swiring) and match up your answers to the correct schematic section.

**Hub/Gateway Setup.**

# Hub/Gateway Setup Notes

As manufacturers update their hub/gateway platforms, the setup process may change. We recommend checking our website for the latest directions, by visiting the relevant short-links below.

If you don't see your hub, please go to: [inov.li/nzw31s0T](https://inov.li/nzw31s0T)

## SmartThings

[inov.li/  
nzw31sST](https://inov.li/nzw31sST)

## Home Asst. Z-Wave JS

[inov.li/  
nzw31sZWJS](https://inov.li/nzw31sZWJS)

## Home Asst. Z-Wave JS UI

[inov.li/  
nzw31sZWJSUI](https://inov.li/nzw31sZWJSUI)


## Hubitat

[inov.li/  
nzw31sHE](https://inov.li/nzw31sHE)

# SmartThings Instructions

**COMPATIBLE HUBS:** Samsung SmartThings Hub V1, V2 and Samsung or Aeotec Hub V3 (NOTE: You will need to install an Edge Driver to ensure full functionality of the switch. For more info, please go to: [inov.li/nzw31sSTPrereqs](http://inov.li/nzw31sSTPrereqs)).

Using the auto-inclusion method, restore power to your switch and within 30 seconds please do the following:

- Open the SmartThings app and click on the devices icon 
- Tap on the (+) button and click, "Add Device"
- Click, "Scan nearby"
- Your switch should include (if not, use the manual method of inclusion and tap up on the paddle 6x)

# Home Assistant Instructions

**COMPATIBILITY:** We recommend either Z-Wave JS or Z-Wave JS UI (formerly Z-Wave JS2mqtt). NOTE: you will also need a compatible Z-Wave stick - a full list can be found here: Z-Wave JS = [inov.li/nzw31sZWJSsticks](https://inov.li/nzw31sZWJSsticks) or Z-Wave JS UI = [inov.li/nzw31sZWJSUIsticks](https://inov.li/nzw31sZWJSUIsticks)).

You didn't think we'd be able to fit the HA instructions in here, did you?! Please visit our website :)

**Z-Wave JS Instructions**

[inov.li/nzw31sZWJS](https://inov.li/nzw31sZWJS)


**Z-Wave JS UI Instructions**

[inov.li/nzw31sZWJSUI](https://inov.li/nzw31sZWJSUI)

# Hubitat Instructions

**COMPATIBLE HUBS:** Hubitat C3, C4, C5 and C7 (NOTE: You may need to install a Device Driver to ensure full functionality of the switch. We recommend doing this prior to pairing. For more info, please go to: [inov.li/nzw31sHEPrereqs](http://inov.li/nzw31sHEPrereqs)).

Using the auto-inclusion method, restore power to your switch and within 30 seconds please do the following:

- Login to your Hubitat portal and click on the devices tab 
- Tap on the (+) Add Device button and click, "Z-Wave" under, "Add device manually"
- Click, "Start Z-Wave Pairing" and your hub should go into pairing mode, find and initialize the device
- Your switch should include (if not, use the manual method of inclusion and tap up on the paddle 6x)

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**Z-Wave Information.**

# About Z-Wave & This Device

As mentioned in the beginning of the manual, we're all smart home owners ourselves and have an amazing community of people who are eager to help and share their setups.

If you ever run into any issues, please do not hesitate to submit a ticket, or post in the community. We'd love to hear from you.

**Community Link:** [inov.li/community](https://inov.li/community)

**Submit a Ticket:** [inov.li/support](https://inov.li/support)

Thanks again for your support and we look forward to helping you get the most out of our smart home!

# Z-Wave Association Groups

Grouping Identifier	Max Nodes	Send Commands
Group 1	5	1. Basic Report
		2. Device Reset Locally
		3. Protection Report
Group 2	5	Basic Set

## Group 1: Lifeline

Members of this group will receive unsolicited messages related to the status of the switch

## Group 2: Basic Set

Sends On & Off commands to associated devices

1. Single press on the up button sends BasicSet (0xFF)
2. Single press on the down button sends BasicSet (0x00)

# Z-Wave Parameters

An overview of the parameters can be found below, but the most up-to-date parameter documentation can be found on our website here:

[inov.li/nzw31sparameters](http://inov.li/nzw31sparameters)

#	Name	Range	Default	Size
4	Invert Switch	0-1	0	1
5	Auto Off Timer	0-32768	0	2

# Command Classes

Command Class	Version
Association	85
Association Group Info	59
Central Scene	5B
Configuration	70
Device Reset Locally	5A
Firmware Update Meta Data	7A
Manufacturer Specific	72
Multi-Channel Association	8E
Powerlevel	73

Command Class	Version
Security	98
Supervision	6C
Switch All	27
Switch Binary	25
Transport Service	55
Version	86
Z-Wave Plus Info	5E

# Manufacturer Compatibility

This product can be operated in any Z-Wave network with other Z-Wave 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. The Inovelli Gen 1 Dimmer Switch w/Scenes 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.

# Factory Reset / Exclusion Info

To factory reset your device, have someone turn off the power to your switch and then turn it back on and immediately hold down on the bottom paddle (off) for 5 seconds. You may also use a certified Z-Wave controller to remove the device from your network to factory default. Only use these procedures in the event that the primary controller is missing or otherwise inoperable.

Exclusion will reset your device as well and can be done directly from the hub. This is helpful if you're running into issues with inclusion. To exclude a device, start the exclusion process on your hub and tap up on the paddle six (6) times within two (2) seconds.

**Product & Contact Info.**

# Product & Contact Info Notes

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If you ever run into any issues, please do not hesitate to submit a ticket, or post in the community. We'd love to hear from you.

**Community Link:** [inov.li/community](https://inov.li/community)

**Submit a Ticket:** [inov.li/support](https://inov.li/support)

Thanks again for your support and we look forward to helping you get the most out of our smart home!

# FCC/IC Statements

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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.

**NOTE:** 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

# FCC/IC Statements (Cont.)

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 or consult the dealer or an experienced radio/TV technician for help. This equipment should be installed and

operated with minimum distance 8in (20cm) between the radiator and your body.

**IC Caution:** This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

**DECLARATION DE CONFORMITE D'INDUSTRIE CANADA:** Ce périphérique a été testé et reconnu conforme aux limites spécifiées dans RSS-210. Son utilisation est soumise aux deux conditions suivantes: (1) il ne doit pas provoquer d'interférences gênantes et (2) il doit tolérer les interférences, notamment celles susceptibles d'en perturber le fonctionnement.

# Product Info

Name: Smart Dimmer Switch w/Scenes

SKU #: NZW31-S

Power: 120V AC, 60Hz

Signal (Frequency): 908.42 MHz

Operating Temperature Range: 32-104 °F (0-40 °C)

Maximum Load (Watts): 500W Single-Gang, 400W Double-Gang, 300W Triple-Gang Incandescent, 300W LED, 150W CFL

Range: Up to 100 meters line of sight between the Wireless Controller (HUB) and the closest Z-Wave Repeater.

Certifications: UL Listed, FCC/IC & Z-Wave Plus Certified

For indoor use. Specifications subject to change without notice due to continuing product improvement. Not rated for inductive loads.

# Company Info / Warranty

If you run into any issues, feel free to reach out to us at: [contact@inovelli.com](mailto:contact@inovelli.com). We typically answer tickets within 24-48 hours and are staffed by actual smart home owners.

All Inovelli products come with a one (1) year warranty (defined as 365 days). This warranty protects you from breakdowns in the material or workmanship under normal use. This warranty is limited in a couple areas. Purchases must be made from Inovelli or an authorized reseller. The product should be used in the manner directed in the instructions. The product must only be used and/or installed in the United States or Canada.

For full warranty info, please visit: [inov.li/warranty](http://inov.li/warranty)

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**Thank You.**

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