

Instructions.

Next Gen Smart Lighting

We're excited to have you on this journey with us and we're here for you every step of the way. Not only are we smart home owners ourselves, but we build all of our products alongside 1,000's of passionate community members. To see how the project came to life and how everyone contributed, please see Page 51. It's truly amazing working with people of all walks of life and even more humbling to see everyone's dedication to making some of the best products.

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

Eric H. - Founder/CEO
Eric M. - Founder/CTO



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Navigating this Manual

The best way to use this manual is to work your way through the sections one by one. We designed this manual as if we were installing the switch ourselves and kept the overall user experience in mind.

1. Figure out your wiring
2. Pre-program your switch (after installation)
3. Connect to your hub/gateway
4. Configure your switch (optimize the settings)

That said, there are so many variables, so many different configurations and so many 3rd party hubs that constantly change their apps, that it can be difficult to keep up. For the most recent manual, visit: inov.li/vzm31sn

Quick Setup.

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 powered on.

If you haven't wired your switch yet and are unsure how, please see the, "Wiring" section on pages 08-27, then come back to finish the setup. It also assumes you know how to enter the ZigBee pairing mode on your hub/gateway. If you don't know how, or this is your first time setting up this switch, please visit the, "Hub/Gateway Setup" section.

While these instructions likely won't change, for the most up-to-date instructions, we recommend scanning the QR code to the right or to visit: inov.li/vzm31snQS



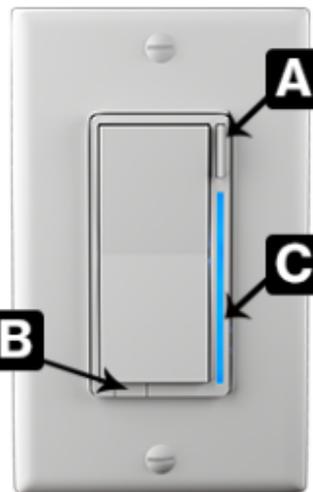
Quick Setup

Assuming your switch is wired up (pg. 08), pre-programmed (pg. 28 - only necessary in 3-Way setups), and you know how to enter the ZigBee pairing procedure on your hub, there are three ways to pair to your hub/gateway: Auto-Pairing (default) and Manual-Pairing (Air-Gap & Config Button Method).

- **Auto-Pairing:** by default the switch will try to auto-pair to your hub immediately after you restore power to your switch (after wiring) and will time out after a few minutes. Make sure your hub is in ZigBee pairing mode.
- **Manual-Pairing:** these methods are used if you do not have a hub during initial wiring installation and/or you want to pair at a later time.

Auto & Manual Pairing Methods

Auto-Pairing: Switch will start pairing automatically when power is restored. The LED Bar (C) should pulse blue indicating the switch is in pairing mode. Start the ZigBee pairing process on the hub at any time. If successful, the LED Bar (C) should turn green.



Manual-Pairing (Air-Gap Method): Start the ZigBee pairing process on your hub. Pull out the air-gap button (B) and push it back in. The LED Bar (C) should pulse blue and the switch will then start pairing. If successful, the LED Bar (C) should turn green.

Manual-Pairing (Config Button Method): Instead of pulling the air-gap, push the config button (A) three (3) times within 1-2 seconds.

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 scanning the QR Code at the bottom right, or by visiting: inov.li/vzm31snwiring

To work your way through this section, first read the warnings, then familiarize yourself with the vernacular used and 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 and whether or not you have to pre-program your switch (pg. 28).

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



Quick Reminder

A quick reminder before we go into the wiring section. Please do not try installing this device if you are unsure of how electrical circuits operate within your home.

As exciting as it is to have a smart switch installed, it can be dangerous and even life-threatening if you do not install this correctly.

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

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 (VZM31-SN) 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 VZM31-SN on non-approved power lines may have hazardous consequences.

Attention – Information importante : Cet appareil (VZM31-SN) 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 VZM31-SN 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, use the VZM31-SN load output to control no more than 600 Watts (Incandescent) or 300 Watts (LED) or 150 Watts (CFL) or no more than 1 Amp of Fan load (On/Off function only). Dimming an inductive load (by connecting to the light load wire), such as a fan or transformer, could cause damage to the dimmer, the load bearing device, or both. Please set the switch to On/Off mode if using a fan.

To install your 2-1 Switch (VZM31-SN), you'll need to identify the following four wires (NOTE: Neutral is not mandatory, but recommended):

- **Line:** Usually black and can also be called the, "hot" or "live" and carries 120VAC electricity into the electrical box
- **Neutral (Not Mandatory):** 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)

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

Warnings (Continued)

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 d'endommager d'autres équipements, il est important de connecter des lumières incandescentes ayant moins de 600 watts, des lumières DEL ayant moins de 300 watts, des ampoules fluocompactes ayant moins de 150 watts ou un ventilateur utilisant moins de 1 ampère et ce dernier avec l'interrupteur en mode marche/arrêt uniquement.

La gradation d'une charge inductive, comme un ventilateur ou un transformateur, pourrait endommager le gradateur, l'interrupteur ou les deux appareils. Veuillez régler l'interrupteur en mode marche/arrêt si vous utilisez un ventilateur.

Pour installer votre interrupteur 2 en 1 (VZM31-SN), vous devrez identifier les quatre fils suivants (REMARQUE: le neutre est optionnel, mais recommandé) :

- **Ligne** : généralement noire et peut également être appelée « chaud » ou « sous tension » et transporte l'électricité 120 VCA dans le boîtier électrique

Warnings (Continued)

- **Neutre (optionnel)** : 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)

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 ZigBee 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. 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 load
- **Multi-Way:** Refers to 3-Way (2 switches, 1 load), 4-Way (3 switches, 1 load), or 5-Way setups (4 switches, 1 load)
- **Dumb Switch:** Refers to your existing switch (ie: the switches you had before replacing with a smart switch)
- **Aux Switch:** Refers to the Inovelli Aux Switch

Step 1 - Determine Wiring Type

The first step is to determine how many switches control your load(s) (light(s), fan, etc).

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

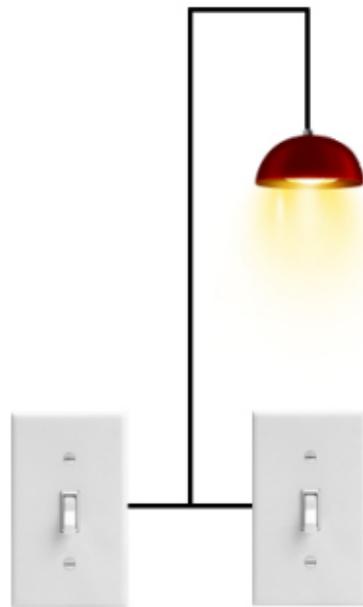
- **Single-Pole:** One switch controls one load (load may contain more than one light, fan, etc).
- **Multi-Way:** Two or more switches control one load (load may contain more than one light, fan, etc). We will use the term, "multi-way" instead of 3-Way, 4-Way, 5-Way, etc as the programming of the switch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

Wiring Type (Circle One): Single-Pole or Multi-Way



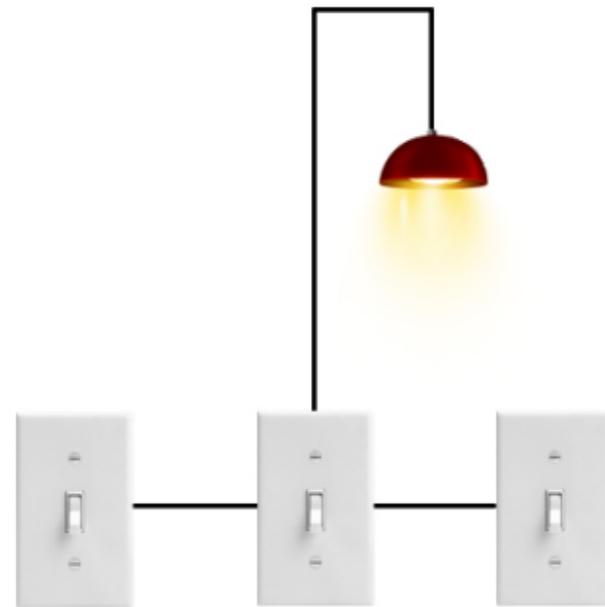
Single-Pole

One switch controls one load (load may contain more than one light).



3-Way

Two switches control one load (load may contain more than one light).



4-Way

Three switches control one load (load may contain more than one light).

Step 2 - Determine Switch Layout

NOTE: If you determined in Step #1 that your switch is single-pole, you can skip this step and move to Step #3. 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 + Dumb Switch:** One smart switch and one dumb/existing switch (one already in your wall).
- **Smart Switch + Aux Switch:** One smart switch and one aux/add-on switch (special switch designed by Inovelli).
- **Smart Switch + Smart Switch:** Two smart switches

See inov.li/vzm31snlayout for pro/cons of each setup.

Wiring Type (Circle One): Multi-Way (Dumb, Aux, or Smart)



Smart + Dumb Switch
One Inovelli smart switch & One dumb/existing switch.



Smart + Aux Switch
One Inovelli smart switch + One Inovelli aux switch.



Smart Switches
Two Inovelli smart switches.

Step 3 - AC Power Type

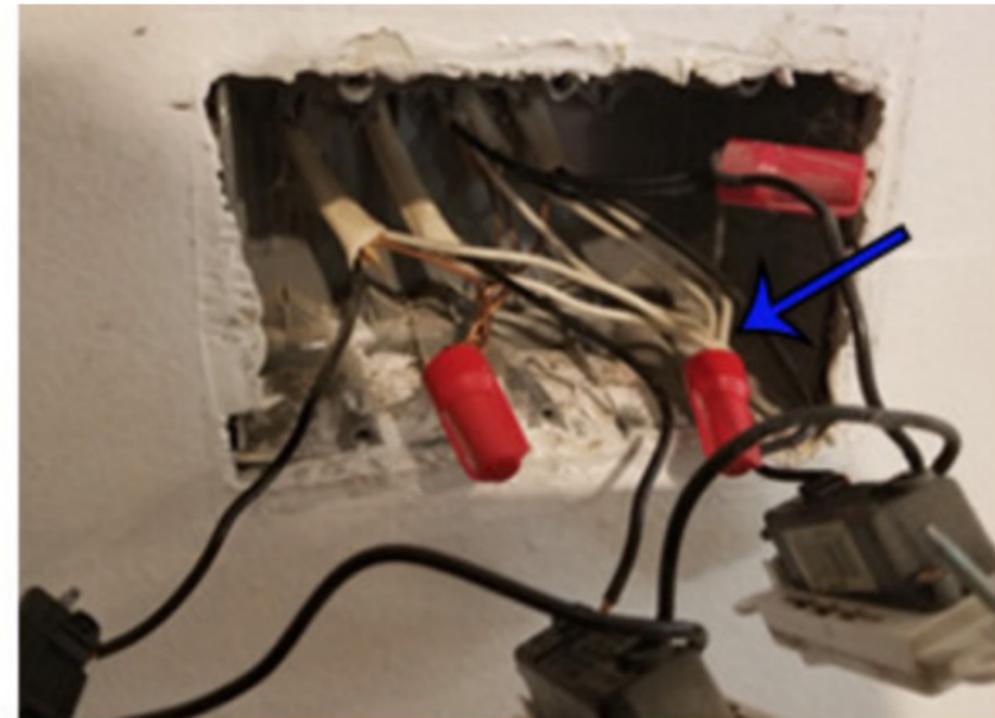
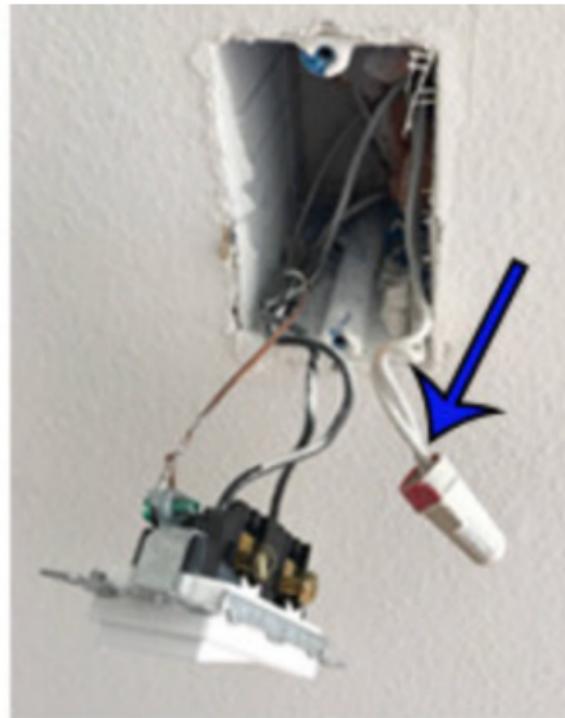
In this step, we will determine if you have a neutral wire or not in your switch gang-box.

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)

Typically the neutral wire is white, so look for a bundle of wires at the back of your gang-box. Those are your neutrals. See pictures on the next page for examples.

AC Power Type: Neutral Wire or No Neutral Wire



Look for white wires bundled together. If you see them, that is oftentimes the neutral wire. If you do not see them, or the only white wire is attached to your switch, then you likely do not have a neutral wire.

Step 4 - Compatibility Check

In this step, we will determine if your switch can be installed with your current 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", "Multi-Way (Dumb)" and "Neutral Wire", you will see that your wiring is compatible. However, if you circled, "Multi-Way", "Multi-Way (Dumb)" and "No Neutral Wire", you will see that your wiring is not compatible and you will need to purchase an auxiliary switch.

Wiring Type	Switch Layout	AC Power Type	Supported
Single-Pole		Neutral Wire	Yes
		No Neutral Wire	Yes
Multi-Way (3-Way, 4-Way, 5-Way, etc)	Multi-Way (Dumb)	Neutral Wire	Yes
		No Neutral Wire	No
	Multi-Way (Aux)	Neutral Wire	Yes
		No Neutral Wire	Yes
	Multi-Way (Smart)	Neutral Wire	Yes
		No Neutral Wire	No

IMPORTANT: For installations where no neutral wire is present, depending on the load wattage, you may need to install a special bypass to prevent flickering and/or keep your switch powered. Bypasses can be purchased here: inov.li/bypass

Step 5 - Switch Installation

The last step is to 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 noted in the beginning of this section, there are many different ways your switch can be wired that we'd have an encyclopedia of a manual, so all of our schematics are housed online.

Keep note of your answers from the prior steps and either scan the QR Code to the right or go to: inov.li/vzm31snwiring and match up your answers to the correct schematic section.



Pre-Programming.

Pre-Programming Notes

NOTE: If you plan on using your switch as an on/off switch and in a single-pole setting, you may skip this step. If you plan on using your switch as a dimmer and/or in a multi-way setup, please continue.

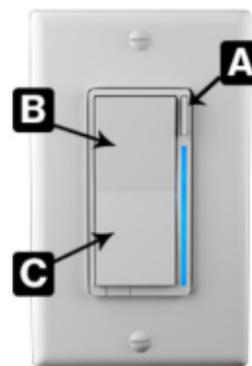
Since this switch has so many different available configurations (on/off, dimmer, smart, aux, dumb, neutral, non-neutral, etc), you may need to pre-program the switch to work manually.

Luckily, it's as simple as pressing a couple buttons. Feel free to follow the steps on the next couple of pages, scan the QR Code or visit: inov.li/vzm31snpreprogramming



Pre-Programming Instructions

Switch Type	Pre-Programming Sequence	Color Confirmation
On/Off	Hold Config (A) while tapping up (B) 3x	Red
Dimmer	Hold Config (A) while tapping down (C) 3x	Orange
Smart	Hold Config (A) while tapping up (B) 4x	Yellow
Wiring Type	Pre-Programming Sequence	Color Confirmation
Single-Pole	Hold Config (A) while tapping up (B) 6x	Indigo
Multi-Way (Dumb)	Hold Config (A) while tapping down (C) 5x	Violet
Multi-Way (Aux)	Hold Config (A) while tapping up (B) 5x	Pink



To pre-program your switch, follow the instructions on the above chart. Start with the switch type, then move over to the pre-programming sequence and then if successful, the LED Bar will light up the color shown under, "color confirmation". Further details can be found on the next page.

Pre-Programming Example

Here's an example of how to use the chart on the prior page:

Let's say you want your switch to be a dimmer switch and you have it wired in a multi-switch setting using a dumb switch. Using the chart below, you would first hold the config button (A) while tapping down 3x on the paddle (C) and the switch will confirm by blinking orange. Next, to program the switch to work in a multi-switch setup using a dumb switch, you would then hold down the config button (A), while tapping down 5x on the paddle (C) and the switch will confirm by blinking violet.

Hub/Gateway Setup.

Hub/Gateway Setup Notes

These instructions were written in March 2022 and reflect the setup process for each hub during this time. Oftentimes, hub manufacturers update their platform and it makes these instructions outdated and for this reason, we recommend you scan one of the QR Codes below or go to the URL's provided. If you don't see your hub, please go to:

inov.li/vzm31sn0T

Amazon Echo SmartThings



inov.li/vzm31snAE



inov.li/vzm31snST

Home Asst.
ZHA



inov.li/vzm31snZHA

Home Asst.
zigbee2mqtt



inov.li/vzm31snZ2M

Hubitat

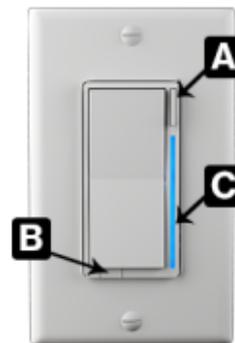


inov.li/vzm31snHE

Amazon Echo Instructions

COMPATIBLE HUBS: Echo Plus 1st & 2nd Gen, Echo Show 2nd Gen, and Echo Studio (NOTE: While this switch works with the hubs shown above, all the advanced features are not supported).

First, put your switch into pairing mode. This can be done by restoring power to it (after wiring), pulling out and pushing back in the air-gap button (B) or tapping the config button (A) 3x rapidly. The LED Bar (C) will pulse blue.

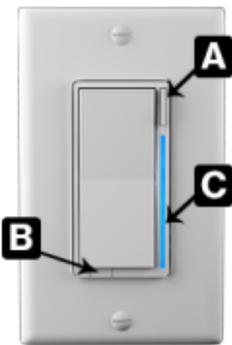


- Open up your Amazon Alexa app and click on the devices icon
- Tap on the (+) button and click, "Add Device"
- Tap on the switch icon
- Scroll to the bottom and select, "Other"
- Click, "Discover Devices"
- LED Bar (C) will turn green if successful

SmartThings Instructions

COMPATIBLE HUBS: Samsung SmartThings Hub V1, V2 and Samsung or Aeotec Hub V3.

First, put your switch into pairing mode. This can be done by restoring power to it (after wiring), pulling out and pushing back in the air-gap button (B) or tapping the config button (A) 3x rapidly. The LED Bar (C) will pulse blue.

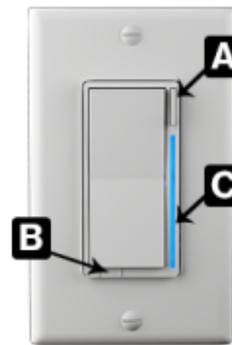


- Open up your SmartThings app and click on the devices icon 
- Tap on the (+) button and click, "Add Device"
- Under the, "Scan for nearby devices", click, "Scan" and your hub will search for devices
- LED Bar (C) will turn green if successful

Home Assistant Instructions

COMPATIBILITY: We recommend either ZHA or zigbee2mqtt (NOTE: you will also need a compatible ZigBee stick).

First, put your switch into pairing mode. This can be done by restoring power to it (after wiring), pulling out and pushing back in the air-gap button (B) or tapping the config button (A) 3x rapidly. The LED Bar (C) will pulse blue.

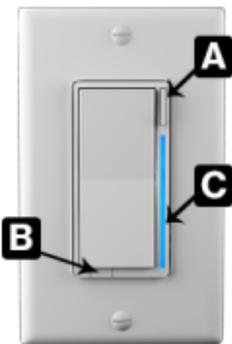


- You didn't think we'd be able to fit the HA instructions in here, did you?!
- For ZHA instructions, please go to: inov.li/vzm31snZHA
- For zigbee2mqtt instructions, please go to: inov.li/vzm31snZ2M

Hubitat Instructions

COMPATIBLE HUBS: Hubitat C4, C5 and C7.

First, put your switch into pairing mode. This can be done by restoring power to it (after wiring), pulling out and pushing back in the air-gap button (B) or tapping the config button (A) 3x rapidly. The LED Bar (C) will pulse blue.



- Login to your Hubitat portal and click on the devices tab  Devices
- Tap on the (+) Add Device button and click, "Zigbee" under, "Add device manually"
- Click, "Start Zigbee Pairing" and your hub should go into pairing mode
- LED Bar (C) will turn green if successful

Advanced Features.

Advanced Features Notes

NOTE: The advanced features shown below are what is built into the switch firmware, and may or may not be supported by your hub/gateway.

These switches are packed with a ton of amazing features, which include scene control (multi-tap), animated notifications, smart bulb mode, energy monitoring, and over 50 different parameters to customize your switch.

This manual will not go into how to setup these features, but rather list them out along with a brief explanation of what they are. For full setup information and further explanation, please scan the QR Code or visit: inov.li/vzm31snAF



Switch Parameters

There are approximately 80 different parameters on this switch, making it one of the most customizable switches out there.

Due to the space constraints in this manual, we had to list them all out on our website. You can access these parameters by scanning the QR Code or by visiting: inov.li/vzm31snparameters

Some of the highlights include: changing the dimming speed, multi-tap speed, min/max brightness, LED bar color (individual LED's or full bar), power/energy monitoring reporting, default dim level, and so much more.



Other Advanced Features

To setup some of the other advanced features, such as: Animated Notifications, Scene Control, Smart Bulb Mode and ZigBee Binding, please see the URL's below as the instructions will be different depending on the hub you're using.

Animated Notifications: inov.li/vzm31snAN

Scene Control: inov.li/vzm31snSC

Smart Bulb Mode: inov.li/vzm31snSBM

ZigBee Binding: inov.li/vzm31snZB

In addition, your switch has the ability to program parameters from the configuration button. To learn more, please visit: inov.li/vzm31snLC

Product & Contact Info.

Product & Contact Info Notes

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

Submit a Ticket: inov.li/support (or scan the QR Code below)

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



ZigBee Info

Placeholder for any ZigBee related conformance statements.

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 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 (continued on pg. 47)

FCC/IC Statements (Cont.)

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 licence-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.

Lors de l' installation et du fonctionnement de cet équipement, la distance minimale entre le radiateur et le corps doit être de 8 pouces (20 cm).

Product Info

Name: Smart 2-1 Switch (On/Off or Dimmer)

SKU #: VZM31-SN

Power: 120V AC, 60Hz

Signal (Frequency): 2.4GHz

Operating Temperature Range: 32-95° F (0-35° C)

Maximum Load (Watts): 600W Incandescent, 300W LED, 150W CFL

Range: Up to 100 meters line of sight between the Wireless Controller (HUB) and the closest ZigBee Module

Certifications: UL Listed, FCC/IC & ZigBee Certified

Company: Inovelli, LLC

Address: 4225 W. Main St., Ste. E, Kalamazoo, MI 49006

Website: <https://inovelli.com/>

For indoor use. Specifications subject to change without notice due to continuing product improvement.

Company Info / Warranty

If you run into any issues, feel free to reach out to us at: 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](https://inovelli.com/warranty)

Project New Horizon

This project was Inovelli's first venture into the ZigBee protocol as we're traditionally known for our work in Z-Wave. Hence the name, "New Horizon".

To reach this, "New Horizon", we relied heavily on our amazing community who quickly grasped onto this project and helped us along the way. In fact, many of the signatures you see in the box and to the right are community members, who've stepped up and helped make this product with us. We believe the products should be built by people who actually use them not by some corporate project manager.

To see the origin of this project, as well as the journey it went through please scan the QR Code or visit: inov.li/newhorizon.



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