ilumin®

Thank You.

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.

You're probably thinking... this intro sounds similar. Well, you're right -- you've heard it if you've purchased an Inovelli product. That's because Ilumin is a part of the Inovelli family. We wanted to create an entire line of lighting because we're crazy about it. The way lights can set the mood. The way they welcome you home and the way they just make you go, "dang, that's pretty sweet!" We had to get in the lighting game.

Anyway, back to who we are... we take our nerdiness seriously by engaging in online groups and design our products around community suggestions and needs. We don't pretend to be a multi-billion dollar corporation worried about shareholders and bottom line. We're ok with being the little guy. The underdog, looking out for the best interests of people like us... the everyday smart home enthusiast who is passionate about moving the industry forward and we wouldn't have it any other way. So again, from the bottom of our hearts, thank you for trusting us.

Table of Contents:

HUB Installation Instructions.

All HUB's are different, so why should your installation instructions be the same? Below you'll find a QR Code to specific instructions for your HUB (NOTE: If you don't see your HUB, please scan the, "Other" QR Code). As you can imagine, it's hard to keep written instructions up to date with all the HUB/App changes, so the most recent instructions will be on the site. However, if you're a manual guy/gal, we get it, please see Page 4 for more details! If ever you run into any issues, please reach out to us at: contact@inovelli.com (just a reminder, we're directing you to Inovelli as it's our parent company).

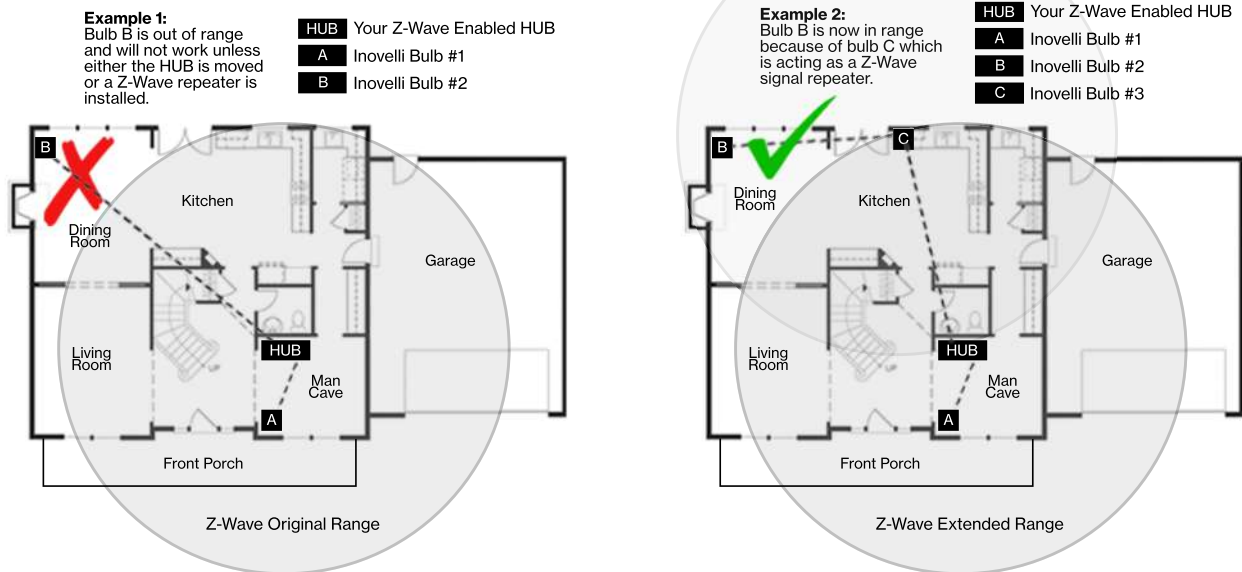| SmartThings	Hubitat	Other
inovelli.com/lzw40/setup/#smartthings	inovelli.com/lzw40/setup/#hubitat	inovelli.com/lzw40/setup/#other

About Z-Wave.

Z-Wave is an incredible technology. With it powering your home, you can choose from over 600 companies and 2100 products, all of which will work with each other. The more devices, the more stable the network. The purpose of this portion of the manual is to help you understand how Z-Wave works (in layman's terms) as well as help you organize an efficient Z-Wave network, setting you up for success in the long run. Afterall, we're assuming you'll want more than one smart home device!

Z-Wave Network | Using Devices That Repeat Signals.

As referenced in the intro, Z-Wave can be used with a few devices or it can be used to build a large network. Below you'll see two examples. In the first example, a user has a HUB which is looking for Z-Wave devices within its radius. Z-Wave devices outside this radius will not be found and need to either be moved within the radius or use a repeating device to reach it. The second example shows how a repeater can be used to reach a device outside of the initial radius. Keep this in mind when building your own network and make sure to use the range estimator below.

Example 1:
Bulb B is out of range and will not work unless either the HUB is moved or a Z-Wave repeater is installed.

HUB Your Z-Wave Enabled HUB
A Inovelli Bulb #1
B Inovelli Bulb #2

Kitchen
Dining Room
Garage
Living Room
Man Cave
Front Porch
Z-Wave Original Range

Example 2:
Bulb B is now in range because of bulb C which is acting as a Z-Wave signal repeater.

HUB Your Z-Wave Enabled HUB
A Inovelli Bulb #1
B Inovelli Bulb #2
C Inovelli Bulb #3

Dining Room
Kitchen
Garage
Living Room
Man Cave
Front Porch
Z-Wave Extended Range

NOTE: Z-Wave range will never be a perfect circle due to walls, furniture, etc. The above is for reference only, please use the, "Range Estimator" below and the Worksheet on Page 3 for a better idea of where to place your bulb or whether or not your chosen location will be in range.

Z-Wave Range Estimator.

Please use the below information to determine the depreciation of the Z-Wave signal. Z-Wave devices should have a distance of approximately 100m (328ft) without any obstacles in the way. Using the below information, if a signal has to travel through an inner wall, it will lose approximately 40% of its signal. Therefore, 100m multiplied by (100% - 40%) = 60m (197ft). Do this for every wall, window, etc and you will have your approximation. There's a worksheet on Page 3 that will help. As always, this is just an estimate. Depending on the manufacturer's quality for your other Z-Wave products, your signal may vary.

Material	Thickness	Signal Depreciation
Aerated Concrete Stone	< 30cm // 11.8"	20 %
Aluminum Coating	< 1mm // 0.04"	100 %
Ceiling	< 30cm // 11.8"	70 %
Furniture (non-wood)	< 30cm // 11.8"	40-60%
Glass (w/out metal coating)	< 5cm // 2.0"	10 %
Inner Wall	< 30cm // 11.8"	40 %
Iron Reinforced Concrete	< 30cm // 11.8"	30-90 %

| Material	Thickness	Signal Depreciation
Metal Grid	< 1mm // 0.04"	90 %
Outer Wall	< 30cm // 11.8"	60 %
Plaster	< 10cm // 3.9"	10 %
Pumice	< 30cm // 11.8"	10 %
Red Brick	< 30cm // 11.8"	35 %
Stone	< 30cm // 11.8"	30 %
Wood	< 30cm // 11.8"	40-60 %

Z-Wave Range Worksheet.

Feel free to use the below worksheet to give an estimate on where you can put your Z-Wave Bulb relative to your HUB (or other Z-Wave repeater). Below is an example of how to use the sheet, using, "Example 1" from Page 2.

Example #1 -- Original Z-Wave Range

Based on the example chart to the right, you can see that, "Bulb B" is out of range as the signal would only reach to about the dining room.

HUB	Your Z-Wave Enabled HUB
A	Inovelli Bulb #1
B	Inovelli Bulb #2
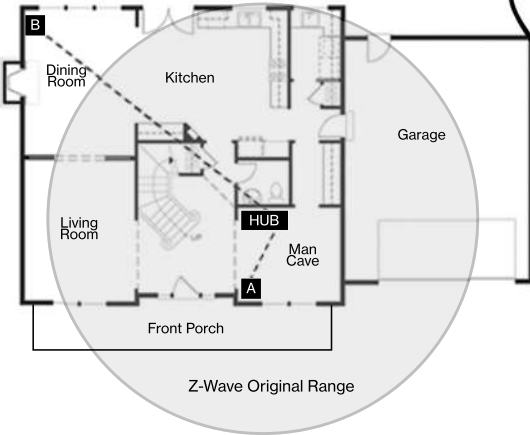
Starting Distance	Obstacle	Signal Depreciation	Ending Distance
100m // 328ft	Inner Wall	40%	60m // 197ft
60m // 197ft	Inner Wall	40%	36m // 118ft
36m // 118ft	Wood Stairs	60%	14m // 47ft
14m // 47ft	Inner Wall	40%	9m // 28ft
9m // 28ft	Wood Cabinet	50%	5m // 15ft
5m // 15ft	Wood Table & Chairs	60%	2m // 7ft

For the starting Distance, use 100m. Then look directly from your HUB to wherever you'd like to put the outlet and see what obstacles are in the way. Then list those obstacles on the worksheet below (using the charts from Page 2).

Floor plan rooms: Dining Room, Kitchen, Garage, Living Room, Man Cave, Front Porch, HUB, A, B. Labeled: Z-Wave Original Range

Starting Distance	Obstacle	Signal Depreciation	Ending Distance

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Best Practices for Pairing and Operating your LZW40 - Dimming Smart Bulb

Now that you've read how to calculate the Z-Wave range and have determined the best location to put your bulb, it's important to understand some best practices of how to pair and operate this device. Below are a few things to keep in mind when you start your individualized pairing instructions (Pages 4-5) as well as operating after the pairing is successful.

Calculate the Maximum Distance From the Worksheet Above and Place Well Within That Distance
Please use the worksheet above to calculate your maximum distance. This will save us both the headache of offline devices. Remember to add all objects that could potentially be in the way and it's our recommendation to be conservative with the distance numbers.

If the Bulb is Not Including, Try an Exclusion
Z-Wave devices can only be included (paired) to one HUB at a time. Sometimes, what happens is that the factory tests the devices by including it to their network and forgets to remove the device from their network, causing the bulb to believe that it's paired to the factory HUB. While this is extremely rare, it may happen. This can also happen if you purchased this bulb used. Follow the exclusion instructions located on Page 4 or 5 if you run into issues or check the range to make sure you are within range of the HUB.

Do Not Turn the Power Off to the Bulb!
Smart bulbs need to have constant power to them in order for the Z-Wave chip to communicate with the HUB. So, do not turn off the physical power to the device or the bulb will not work. If you want to control your bulb from a physical bulb, please install our special smart bulb enabled swtiches (Inovelli Red Series Dimmer or On/Off) which allows you to dim up/down all from the tap of a switch. Please see our website or reach out for more details.

Getting to Know Your LZW40 Dimming Bulb

Let's get to know your sweet new smart bulb! Good news is, it's literally a normal bulb, but with tons of dimmable LED's and powered by Z-Wave. I'm not really sure what else to write here other than maybe the silver part goes into the lamp and the white part shines the light. Also, remember to always keep power to your light bulb as the Z-Wave module needs power to send/receive commands.

Bulb Parameters

Below you'll find the various parameters associated with your bulb. Pretty straight forward, but it's good to know in case you ever wanted to edit them.

Parameter #	About	Description	Range	Default	Size (Bytes)
2	Memory Function	When power is restored, the switch reverts to either On, Off, or Last Level 0 = Returns to State before Power Outage, 1 = On	0-1	0 (Prior State)	1

Including (Pairing) Your Bulb: General Instructions

Below are the general instructions on how to include (pair) the bulb. For HUB specific instructions, please scan one of the QR Codes on Page 1 or visit the URL underneath each QR Code for more information. However, if you know how to put your HUB or Gateway in inclusion mode, you can follow the instructions below to get started.

IMPORTANT: If you are having issues pairing/including your device, please ensure your bulb is within range of your HUB (pages 2-3). If you believe you're within range and it's still not working, then you may have to run an Exclusion. Put your HUB in Exclusion mode and turn the power on. Your bulb will blink twice (2x), indicating it's in exclusion mode. When exclusion is successful, it will blink one more time (1x) to confirm. Your HUB should say that the device is excluded. You may then add (include) the bulb per the instructions below.

Steps 1: Gather Your Materials, Find an Appropriate Location, and Install Your Bulb
Materials Needed: Light Bulb, Cell Phone/Tablet/Computer, and a Z-Wave enabled HUB/Gateway.

➤ Locate an area to install your bulb within the recommended distance (Pages 2-3) from your HUB/Gateway.
➤ Walls, furniture, and other obstructions may degrade the communication between the bulb and your HUB/Gateway, so please keep this in mind when selecting a location.

Step 2: Adding (Including) to the Network & Finishing the Setup Process
Now that the bulb is physically installed, let's start the inclusion (pairing) process.

➤ With the bulb turned off, start the inclusion process on your HUB/Gateway.
➤ Once the inclusion process has started, turn on the bulb and it will immediately blink twice (2x), indicating it's in inclusion (pairing) mode.
➤ If the bulb was included successfully, it will blink one more (1x) time. If it was not included successfully, you may have to run an exclusion as mentioned above. If there's still issues, please ensure your bulb is within range (Pages 2 & 3).

Including (Pairing) Your bulb: SmartThings Instructions

Below are the general instructions on how to include (pair) the bulb for Samsung SmartThings users.

PLEASE READ: As of the date this manual was written (August 12th, 2019), the bulb has not been WWST (Works With SmartThings Certified). However, by the launch date of our product, we do anticipate it will be WWST Certified. The reason we're stating this is because if you receive this product prior to the certification, you will need to use the SmartThings Classic App and also install a Device Handler for you to experience all the bells and whistles. If you use the new SmartThings App or do not install a Device Handler with the SmartThings Classic App, the remote functionality will only be on/off and dim.

IMPORTANT: If you are having issues pairing/including your device, please ensure your bulb is within range of your HUB (pages 2-3). If you believe you're within range and it's still not working, then you may have to run an Exclusion. Put your HUB in Exclusion mode and turn the power on/off/on/off/on/off/on (3x on and 2x off) until your bulb blinks three (3x) and then blinks 1x to confirm. Your HUB should say that the device is excluded. You may then add (include) the bulb per the instructions below.

Steps 1: Gather Your Materials, Find an Appropriate Location, and Install Your bulb
Materials Needed: Light Bulb, Cell Phone/Tablet/Computer, and a Z-Wave enabled HUB/Gateway.
➢ Locate an area to install your bulb within the recommended distance (Pages 2-3) from your HUB/Gateway.
➢ Walls, furniture, and other obstructions may degrade the communication between the bulb and your HUB/Gateway, so please keep this in mind when selecting a location.

Step 2: Adding (Including) to the Network & Finishing the Setup Process (Using the SmartThings Classic App)
Now that the bulb is physically installed, let's start the inclusion (pairing) process. Please make sure you are using the, "SmartThings Classic" app. If you'd like to use the new SmartThings App, please check the WWST URL to see if "ilumin by Inovelli" is listed: https://www.smartthings.com/products. If it's not, you will have to use the Classic app with a Device Handler.

➢ Open up your SmartThings Classic app and click on the, "My Home" tab followed by the, "Things" tab.
➢ **With the bulb powered off**, scroll to the bottom and click on, "Add a Thing" or click on the (+) at the top right of the screen.
➢ Once the inclusion process has started, turn on the bulb (ie: power it on) and the bulb will flash twice (2x) indicating it's in inclusion mode.
➢ If the bulb was included successfully, it will blink one more time. If it was not included successfully, you may have to run an exclusion as mentioned above. If there's still issues, please ensure your bulb is within range (Pages 2 & 3).
➢ You should now see that your device is detected (it should say, "Z-Wave Bulb" or something similar).
➢ After your device is detected, press, "Save" (or if you'd like to rename your device, please do so and click, "Save").
➢ Once you click, "Save" a pop-up will appear asking you to, "Confirm Paired Devices" -- Click, "OK".
➢ Now, you should be back at the, "My Home" screen and you should be able to see your bulb!

Device Handler Installation (Abbreviated):
Below is a shortened way to install the device handler. For more in depth instructions, please visit the URL in the footer.
➢ Log into your IDE Account (https://graph.api.smartthings.com/) -- it's the same login/password as your mobile app.
➢ Click on, "My Locations" and then select your location.
➢ Next, click on, "My Device Handlers" and press the, "Create New Device Handler" button.
➢ Now, open a new tab in your browser and go to: github.com/InovelliUSA/SmartThingsInovelli/tree/master/devicetypes/inovelliusa and find the device handler for, "LZW40" and once you see the option for, "Raw", click on that button and copy the code*.
➢ Next, go back to IDE and click on the, "From Code" tab and paste the code from GitHub.
➢ Next, click, "Create", then, "Publish" and finally, "For Me" to finish the installation.
➢ Finally, to activate the handler on your bulb, go to, "My Devices" in IDE and find your Inovelli bulb.
➢ Click on the bulb, scroll to the bottom and click, "Edit" -- then find, "Type" and then select the new device handler from the drop down and then click, "Update".
➢ Now, when you open up the bulb menu in the app, you should see the Inovelli logo, a color wheel, dimness setting and finally, a Kelvin setting (warm/cold white).

Z-Wave Command Classes

Command Class Association Group Info
Command Class Association V2
Command Class Basic
Command Class Configuration
Command Class Device Reset Locally
Command Class Firmware Update Md V2
Command Class Manufacturer Specific V2
Command Class Powerlevel
Command Class Security
Command Class Switch All
Command Class Switch Multilevel V2
Command Class Version V2
Command Class Z-Wave+ Info V2

Z-Wave Association Groups

Association Command Class
This association group is only used for Z-Wave plus lifeline communications.

Number of Association Groups	1
Maximum Supported Nodes For Association Groups	1

Resetting Your Device

You may power on/off the bulb 6x (between 0.5-2 seconds each time) or use a certified controller to remove the device from your network to factory default. Only use this procedure in the event that the network primary controller is missing or otherwise inoperable. Your bulb will flash twice to confirm factory reset.

Federal Communications Commission (FCC) Statement

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 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.

Warranty and Specifications

Warranty: Inovelli will replace any defective unit for one (1) year after the purchase of the unit, pending the unit was used in the manner it was intended to. Please email us at: contact@inovelli.com or visit us at www.inovelli.com/warranty for full details.

Specifications for Model # LZW40:
Power: 120V AC, 60Hz, Signal (Frequency): 908.42 MHz, Lumens: 806lm, Wattage: 8.5W
Range: Up to 100 meters line of sight between the Wireless Controller (HUB) and the closest Z-Wave Module
For indoor use. Specifications subject to change without notice due to continuing product improvement.
Approval: UL Listed / FCC / Z-Wave Plus Certified

Project Dimension

You may have noticed our signatures and project name on the inside of the box and wondered, "what is that all about?". Well, great question! All of our products have a project name associated with them that means something to us and speaks directly to the device itself. It's personality if you will. In addition to the project name, our signatures indicate that we've all signed off on the project. We believe in the project and worked hard, along with you, to bring it to life.

Project, "Dimension's" original name was, "Project Mullet Blaster" bc we had a theme going on in the office to come up with the most ridiculous name. However, as the names tamed down a bit, we came up with, "Dimension" because it's short for Dim, and this is a dimmer bulb. A stretch, I know, but I remember us sitting around texting each other saying, "you'll never believe what, 'dim' is short for...." and then we all went back to playing D&D and talking about Z-Wave nodes in hex and binary (kidding… or am I?)

If you haven't followed us for the past year or so and this is your first interaction with the brand, our approach to building products is that we want something we'd put in our own home (we're all smart home owners) and we want to build our products with you taking the ride with us. That is, these are community built products in which 100's, if not 1000's of people outside of Inovelli have contributed to.

So, thank you for not only your support but for helping us put out some amazing smart bulbs. Here's to a colorful house!

Eric H.
Founder / CEO

Earlier in the year we were approached by a large B2B company that wanted us to be their smart bulb provider. I wasn't passionate at first about the idea as my heart was in creating light switches (lame, I know) but as time went on, I really started to get excited about forming a new line of LED products to really showcase what Z-Wave can do. Plus, who doesn't love some good ol' fashioned smart bulbs?

Eric M.
CTO

I've always been a huge fan of color bulbs and LED strips. This was an opportunity for Inovelli to start showcasing what it could do in the market. Our manufacturer, who is a leader in LED production, provided an out of the box solution that allowed us to go to market quick with firmware that highlights the wonderful world of Z-Wave. We're really excited about this bulb and look forward to creating more variations!

Micah
CFO

Project Dimension was a great project to work on as we really got to see the true capabilities of our manufacturer with their white-label options. We thought there would be some firmware/hardware tweaks, but out of the box, these bulbs were amazing. The bulb was bright and the response time was quick. Now we just need to stop Eric from having dance parties every day at 4pm!

Nathan
CSO

I'm a huge fan of smart bulbs. In fact, it's where I started my home automation journey. There's something cool about sitting down after a long day, putting a little mood lighting on and relaxing. Another thing I use these for is to mess with the kids by remote controlling them when I'm away.

Kyle
Director of
Cust. Service

When we first started talking about these, I was excited at the opportunity. This was one of the first products we sold at Inovelli and we've always wanted to get back into the bulb market. With the transition of manufacturers, and moving towards one that specializes in lighting, we were thrilled about the opportunity. When we tested out the first samples of these, we were so giddy and acted like a bunch of dorks turning on and off lights, etc. You'd think we've never seen a smart bulb. We hope you enjoy it as much as we do!