How to wire Nano Dimmer with neutral wire

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Installing Nano Dimmer with a neutral wire / 3-wires.

This guide is part of the larger **Nano Dimmer user guide** (https://aeotec.freshdesk.com/solution/articles/6000162176-nano-dimmer-user-guide-) and details how to install **Nano Dimmer** (http://aeotec.com/z-wave-light-dimmer-switch) with a neutral wire and with a full-power load. It is not suitable for installing Nano Dimmer with a small power load such as a LED light or a compact fluorescent lamp without a bypass load. Return to the core user guide to explore other installation methods, including installing Nano Dimmer without a neutral wire, and other elements of the setup process.

This guide can be utilised to install Nano Dimmer to control a ceiling fan. It is, however, only compatible with Inductive or Fan Motor loads rated under 100W.

Important:
A licensed electrician with knowledge and understanding of electricial systems and electrical safety should complete the electrical installation.

Installation video.
This **installation video** (https://www.youtube.com/watch?v=2MCPrLXr6zk) will take you through each step of installing Nano Dimmer with a neutral wire. Other installation videos and features can be found on **Aeotec's YouTube channel** (http://youtube.com/aeotec). The textual equivalent of this video's steps can be found below.

Aeotec Z-Wave: Nano Dimmer tutorial for 3 wire / neutral installation

Installation steps.

To complete the installation you'll need;

- Aeotec Nano Dimmer
- Two 18AWG copper wires - these are required to attached your existing wall switch to Nano Dimmer. Should you be using **WallSwipe (http://aeotec.com/z-wave-wall-switch)**, these won't be required.
- Voltage tester
- Philips head screwdriver

### 1. Remove your existing switch from the wall.
Switches are different globally, but for this step you wish to detach any wall plate and adjust any screws so that the wires attached to the switch can be seen and accessed. Do not touch them at this stage.

2. Identify Live and Load wires using the voltage tester.
Use your voltage tester to identify which of the wire on your switch is the Live wire and which is the Load wire. The voltage tester will report the Live wire as carrying electricity and it'll report the Load wire as carrying no electricity.

Make a note of which is which for later reference.
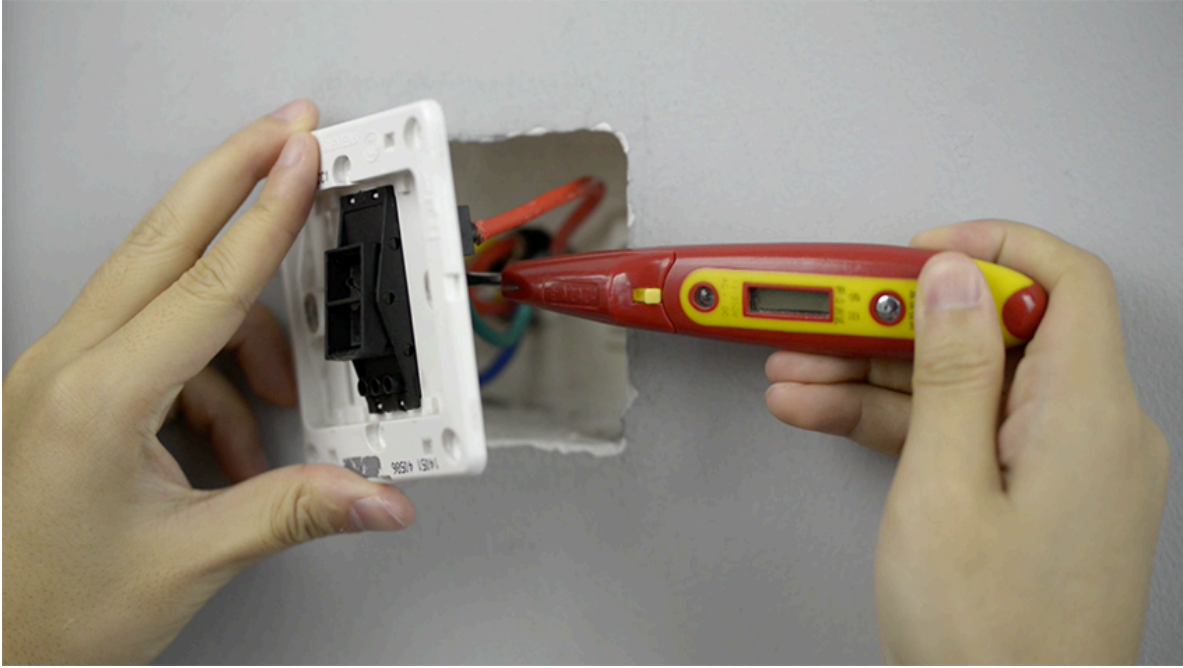
3. Shut off electricity to the switch.

Shut off the main circuit breaker for your home so that no electricity reaches the switch for the following steps. Not doing so poses a risk to both yourself and Nano Dimmer.

Confirm that the power is off by using the voltage tester to check the Live wire and terminal. No electricity should be present.

Note: Your home's main circuit breaker must support the overload protection for safety.

4. Disconnect the wires from the back of the switch.
Now that it's powered off, it's safe to remove the wires from the wall switch. Loosen the terminal screws to remove each wire from the switch.

Put the switch aside for later use.

5. Identify the neutral wire.
For this 3-wire / with installation tutorial, we'll be utilising the neutral wire. It's likely that the neutral was not already attached to your switch, but rather is the disused and insulated wire in sitting in the wall box. In this picture, the neutral wire is blue.
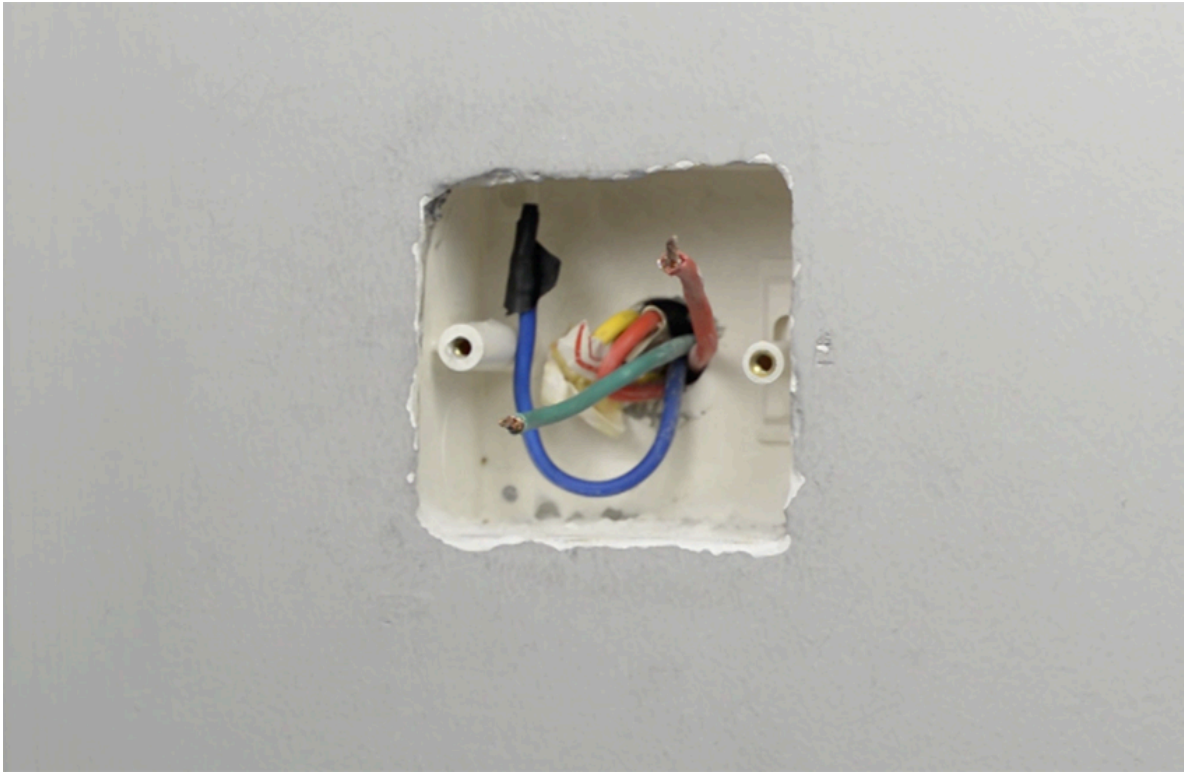
6. Prepare the wires.
So that you have enough length on each wire for the follow steps, gently pull at the 3 wires we'll be using (Live, Load, and Neutral) to lengthen them.
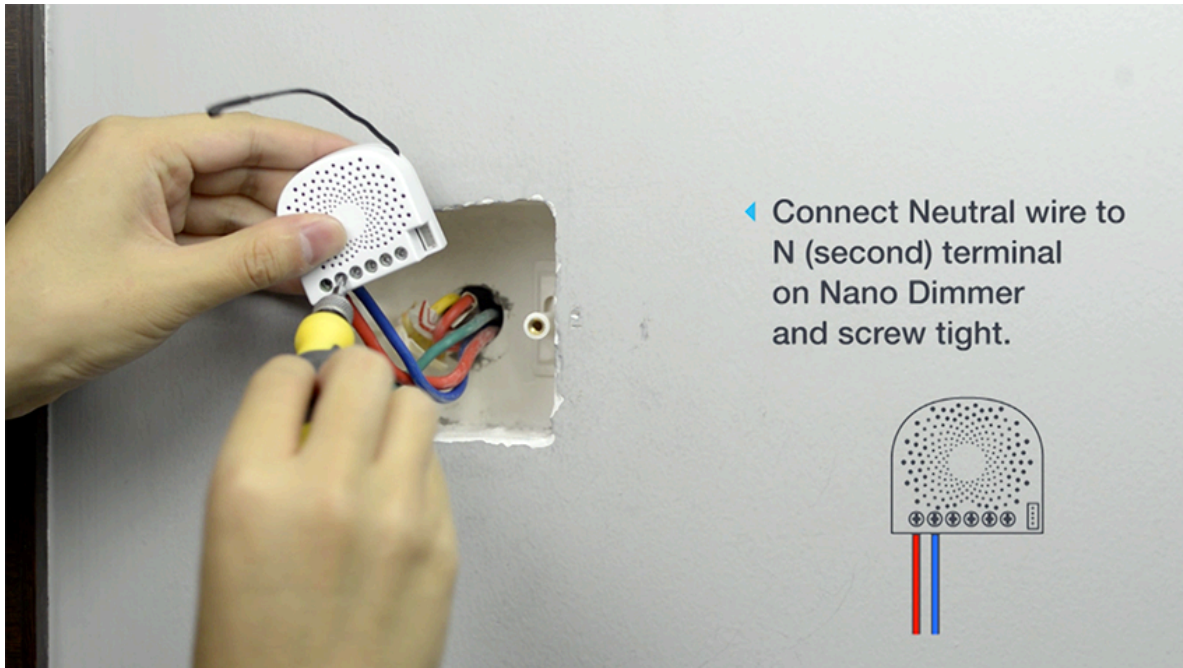
7. Connect the Live wire to Nano Dimmer.
Connect the Live wire to the L terminal on Nano Dimmer. The L terminal is the left most terminal when the screws are facing you as this image shows.

Tighten the terminal's screw to affix the Live wire.

◀ Connect Live wire to L (first) terminal on Nano Dimmer and screw tight.
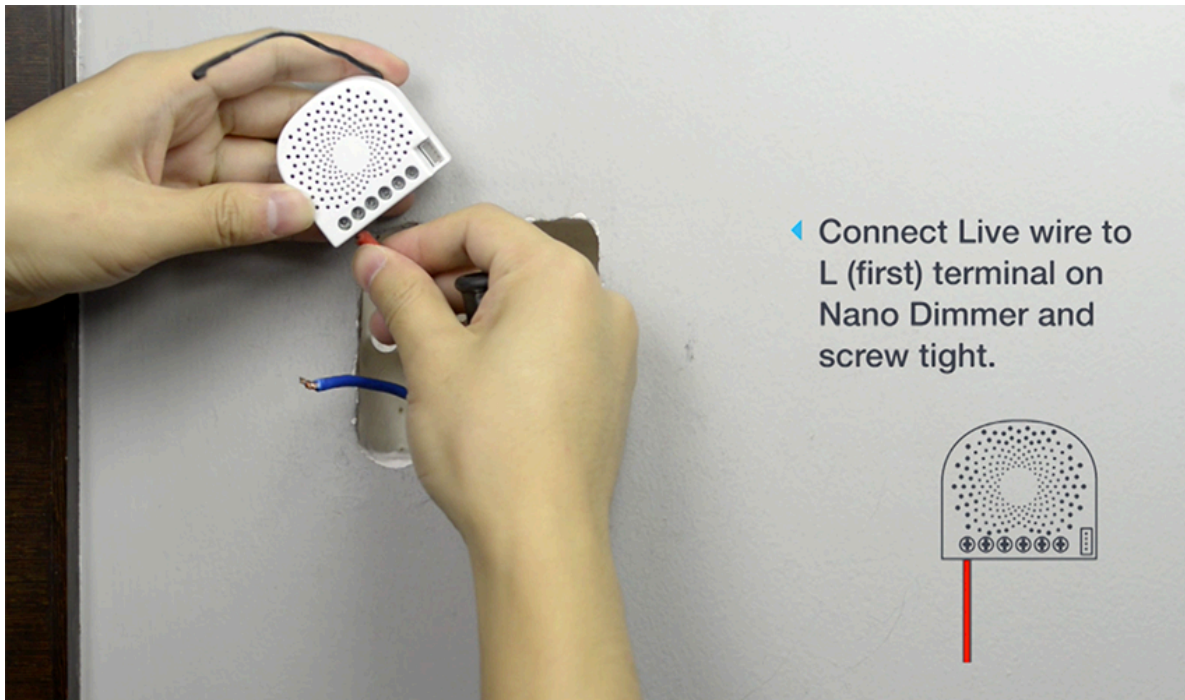
8. Connect the Neutral wire to Nano Dimmer.

Connect the Neutral wire to the N terminal on Nano Dimmer. The N terminal is the second terminal from the leftwhen the screws are facing you as this image shows.

Tighten the terminal's screw to affix the Neutral wire.

Connect Neutral wire to N (second) terminal on Nano Dimmer and screw tight.

9. Connect the Load wire to Nano Dimmer.
Connect the Load wire to the OUT terminal on Nano Dimmer. The OUT terminal is the third terminal from the left when the screws are facing you as this image shows.

Tighten the terminal's screw to affix the Load wire.

Connect Load wire to the OUT (third) terminal on Nano Dimmer and screw tight.
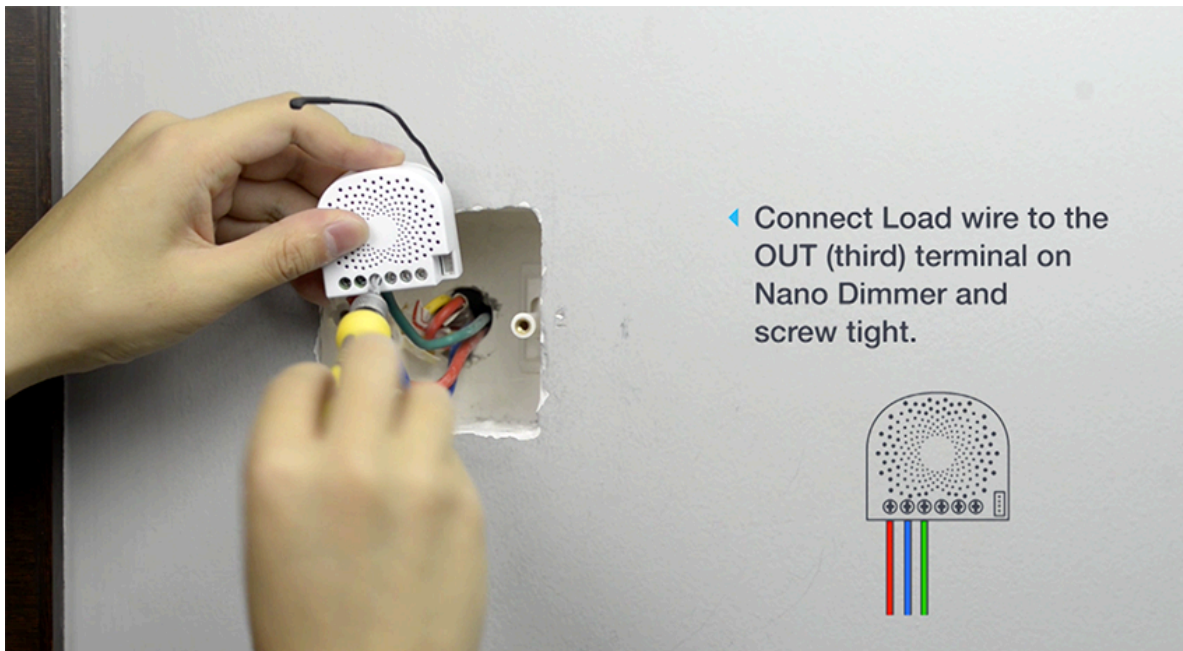
10. Prepare the connection wires.
If you are connecting your existing wall switch to Nano Dimmer, you'll use the 2 x 18AWG copper wires for the following steps.

Each wire will need 0.27" / 5mm of the metallic part of the wire exposed. Should less metallic wire be exposed, use a wire stripper (or similar) to remove insulation accordingly. Should more than 0.27" / 5mm be exposed, cut the wire accordingly.
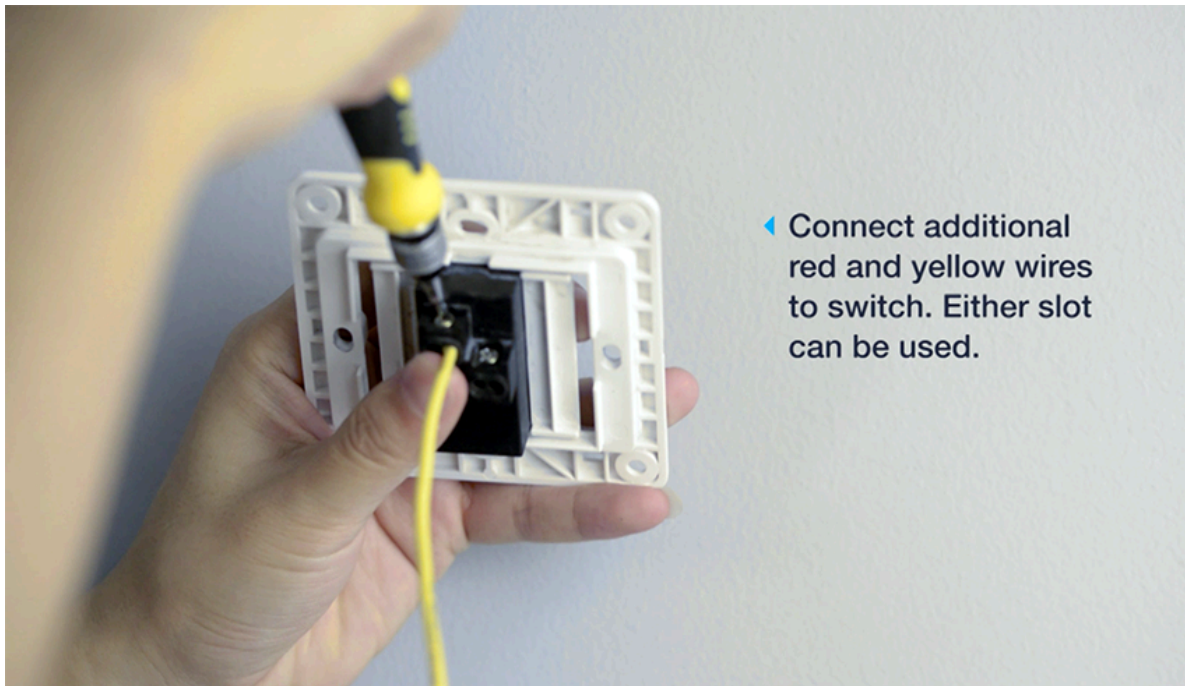
0.27"
(5mm)
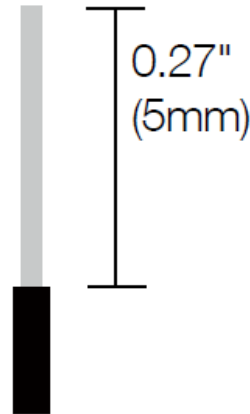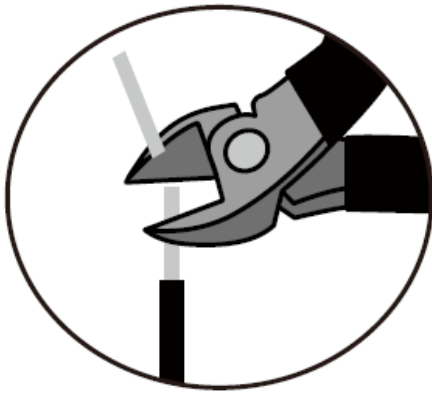
Cut wire if neccessary   Strip Gage (measure barehere)

10. Attach the connection wires to your wall switch.
If you are connecting your existing wall switch to Nano Dimmer, connect the 2 x 18AWG copper wires to it.

The copper wires are used for signalling by Nano Dimmer, so it doesn't matter which terminal of the switch you attached them to.

◀ Connect additional
red and yellow wires
to switch. Either slot
can be used.

10. Attach the connection wires to Nano Dimmer.
Attach one of the 18AWG copper wires to the COM terminal on Nano Dimmer. The COM terminal is the fourth terminal from the left when the screws are facing you. Tighten the terminal screw to secure the wire.

Attach the second of the 18AWG copper wires to the S1 terminal on Nano Dimmer. The S1 terminal is the fifth / second last terminal from the left when the screws are facing you. Tighten the terminal screw to secure the wire.
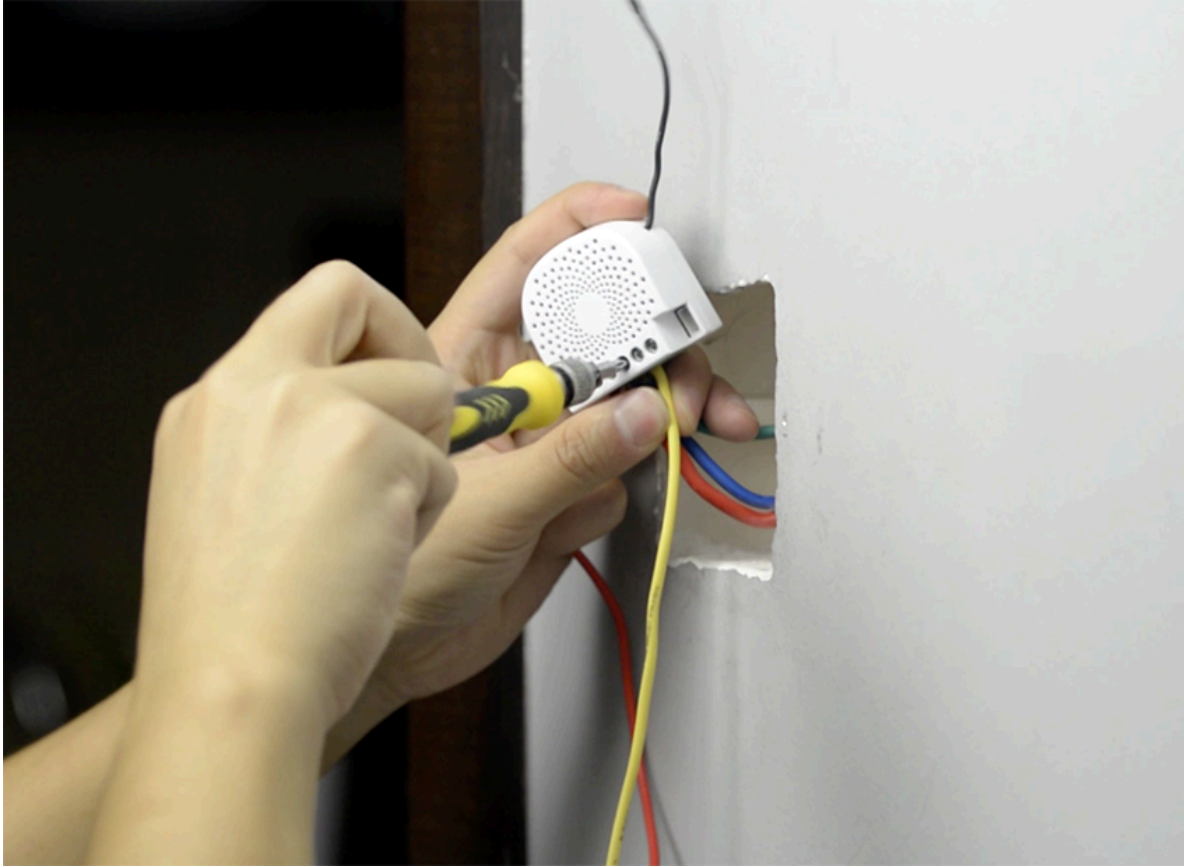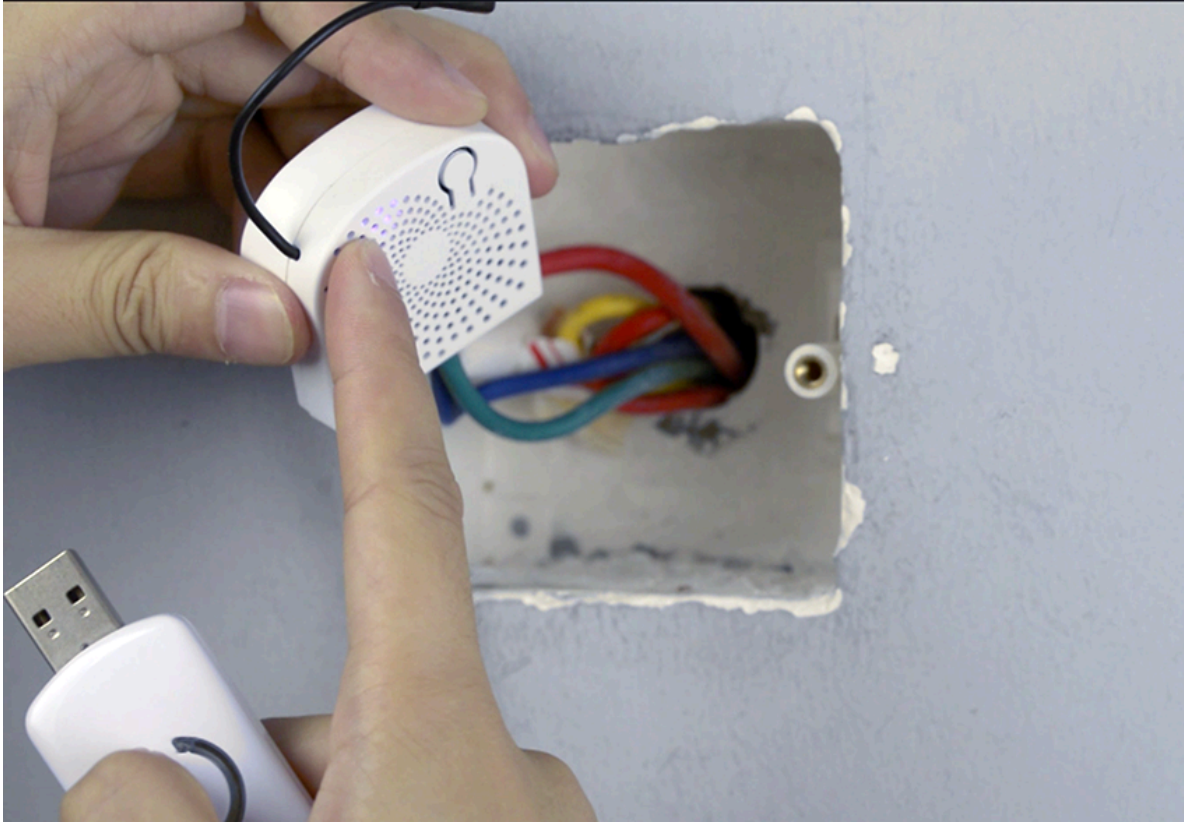
11. Temporarily turn the power back on.
Return to the main circuit breaker for your home and temporarily turn your lighting circuit back on.

12. Add Nano Dimmer to a Z-Wave network.
It's now time to add Nano Dimmer to a Z-Wave network so that it can be controlled and automated. To do this;

1. Add your Z-Wave gateway / controller into 'add new product' mode. If you're unsure of how to do this, please refer to the relevant section of the controller's instruction manual. The feature may be called add product, including product or pair product depending on the brand of the gateway.
2. Press the Action Button on Nano Dimmer. The LED on Nano Dimmer will blink green to indicate that it has entered network pairing mode. The Action Button is the sole button on the rear side of Nano Dimmer. It sits to the right of the status LED.
3. When Nano Dimmer has successfully joined a Z-Wave network, its RGB LED will emit a solid colour.

   If Nano Dimmer fails to join a network, its LED will emit the colour red for 2 seconds and then will alternate through a rainbow of colours. Should this occur, repeat the steps above ensuring that your gateway / controller is in the correct mode.

With your Nano Dimmer now working as a part of your smart home, you'll be able to configure it from within your home control software. Please refer to your software's user manual for further instructions on configuring Nano Dimmer to your needs.

13. Turn off the power again.
Return to the main circuit breaker for your home and turn off the power to your lighting circuit back again. This is an important safety step.

14. Insert Nano Dimmer into your wall.
Push Nano Dimmer and the wires back into the junction box in your wall.

15. Reattached your wall switch.
Reattach your wall switch to your wall.

16. Turn the power back on.
Return to the main circuit breaker for your home and turn your lighting circuit back on.

16. That's it.
Nano Dimmer is now invisibly installed in your home and a part of your Z-Wave network.

Wiring diagram.
The following is the wiring diagram for the installation method described above.

Touch panel

Live

Neutral