

Installation Instructions

Notes and Warnings:

This manual contains important information about the installation and operation of the **simpleSwitch™**.

- READ THIS MANUAL CAREFULLY before installing or servicing this product.
- Improper installation or operation can result in severe injury or property damage.
- Installation and repair must only be carried out by a licensed and qualified service person who has: thoroughly read, understands, and strictly adheres to, these instructions, as well as the instructions for electrical devices that are to be connected to the **simpleSwitch240™**.
- The manufacturer and seller are not responsible for any damage that may happen from improper installation or improper use.
- The **simpleSwitch240™** is to be installed and used in accordance with national and local electrical codes.
- **Electric Vehicle (EV) home chargers have settings that must be configured on the EV charger device (not the car) prior to charging with simpleSwitch240™. Simply stated, EV chargers must be set to a maximum of 48 Amps charging. See Step 23.**
- **Primary or Secondary appliance power draw total above 50 Amps will damage the simpleSwitch240™**

Specifications:

Model	simpleSwitch 240™
Weight (pounds)	4 lbs.
Dimensions (W x H x D in)	7.58 x 7.58 x 4.90 in
Power Connection (Volts/Amps) 50/60Hz	120-208/240VAC 60Amp Breaker Max. (3 Phase Min 206VAC)
Priority Output	120-208/240VAC 50Amps FLA
Secondary (Switched Output) Full Load Rating – Continuous Use Suggested Secondary Appliance Amperage	120-208/240VAC 50 Amps ≤48 Amps
Overcurrent Protection on Internal Contactors	Set by manufacturer at 50Amps on Secondary output only
Maximum Breaker Size	60 Amps
Contactors Type	Latching
Enclosure Rating NEMA	Type 1, 2, 3R, 4, 4X, 6, 6P, 12, 13
Mounting Environment / Orientation	Indoors or outdoors / vertical or horizontal or inverted
Temperature Rating in Degrees Celsius	Operating Ambient: +50°C max. Storage -40 to +70°C
Conductor Metal Type to be Connected to simpleSwitch	Copper conductor wire to simpleSwitch terminal ports only (No aluminum cable is to connect directly to simpleSwitch)
Fail-Safe	Contactors to Secondary output open if there is a malfunction of power or internal board, disconnecting the supply of power to Secondary output
Conductor Fill, Enclosure	Maximum number of conductors 12 Not to be used as junction box for other uses
Horsepower Rating	5 HP
Delay Time	(5) minute delay to restore power to the Secondary output, when Priority appliance is using less than 250 watts
Standard(s) for Safety:	UL 916, Energy Management Equipment CSA C22.2 No. 205-17 Signal Equipment
Testing	UL Certificate of Compliance E510161 US/CAN LISTED



Installation Steps

1. Determine which circuit the simpleSwitch 240™ will be connected to.

2. Determine which appliance is “Priority” and which is “Secondary”.

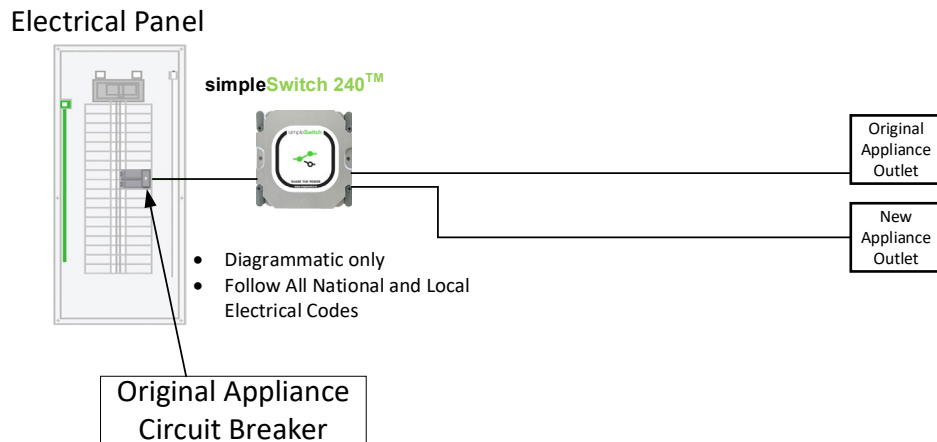
Considerations:

- a. The simpleSwitch 240™ will always supply un-interrupted power to the Priority appliance.
- b. The Secondary appliance only has power supplied when the Priority appliance is not in use or drawing less than 250 watts.
- c. **Priority Appliance:**
Examples: Range, electric oven, induction stove, clothes dryer, electric heaters, air conditioner, heat pump, small/med steam-showers, general use auxiliary plug 240volt.
- d. **Secondary Appliance:**
Examples: RV outlet, shop equipment, electric heaters, air conditioner, general use aux. 240.
- e. **Fail-Safe Note:** In jurisdictions that require Electric Vehicle Energy Management Systems (EVEMS) to have a fail-safe power disconnect to the EV charger (Electric Vehicle Supply Equipment (EVSE)), the EV charger should only be connected as a secondary device.

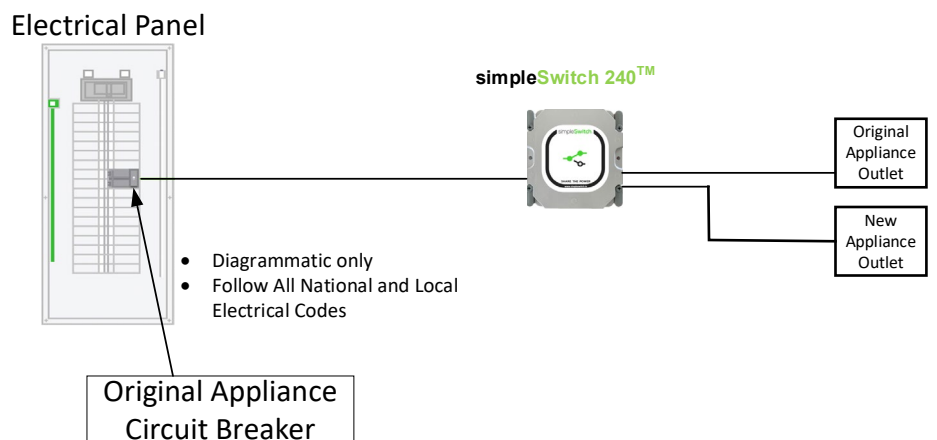
3. Determine location of simpleSwitch 240™.

Can be used in new construction or renovations. Examples for placement in renovations:

- a. The simpleSwitch 240™ can be mounted close to the Electrical Panel.



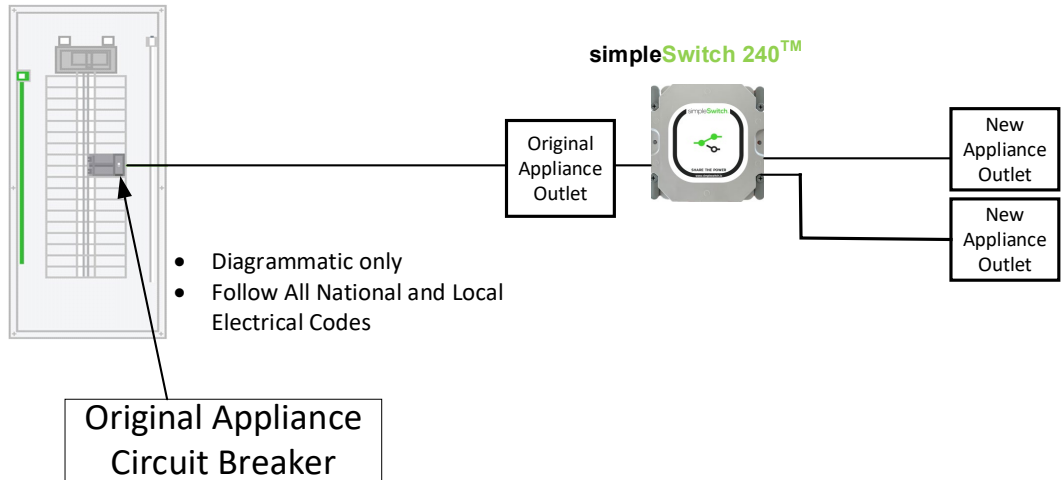
- b. The simpleSwitch 240™ can be teed in downstream of the panel at a point that requires the least amount of fishing, demo and wall repair.



Examples for placement Continued:

- c. The original Priority appliance outlet can be converted/used to junction the **simpleSwitch 240™**.

Electrical Panel



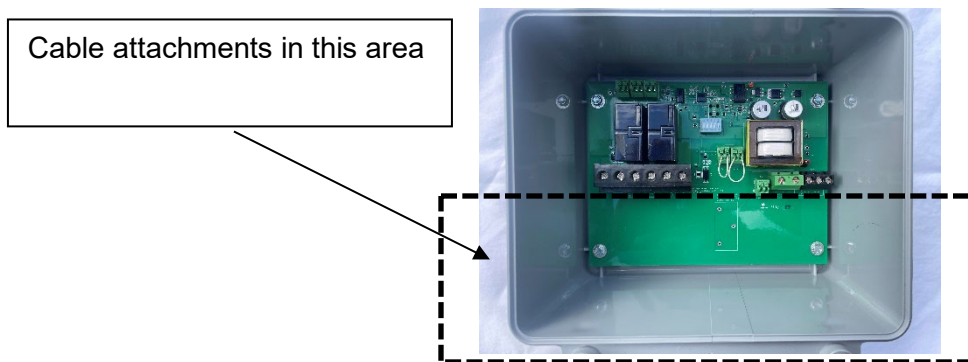
4. Determine cable size and type from the power source to the simpleSwitch 240™.

- The **simpleSwitch 240™** will accommodate:
 - Minimum size conductor #14 Copper American Wire Gauge (AWG)
 - Maximum size conductor #6 Copper American Wire Gauge (AWG)
- Considerations:
 - When determining cable size and type, factor in all local code requirements.

5. Determine cable pathways.

- Cable pathways to be designed for cable entry from the side (lower ½) or bottom (not top).
- Considerations:
 - Determine input and output cable pathways before mounting the **simpleSwitch 240™**.
 - Consider any junction boxes (or similar wire raceway troughs, or wire ducts, wire gutters), or other equipment or hardware to accompany the installation.
 - Consider radius of cable bends when planning cable pathway and device placement.

6. Mount Conduit Fittings to the simpleSwitch 240™.

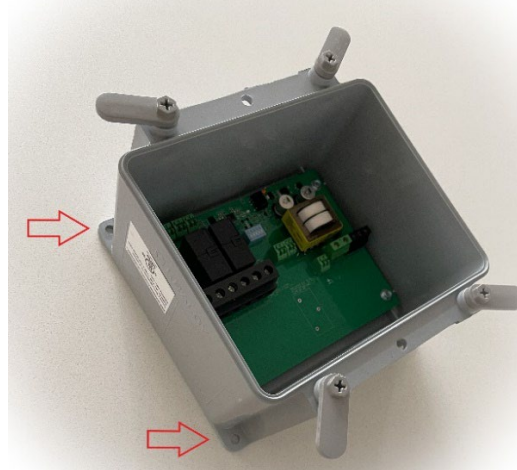


CAUTION: Plan holes and drill with mild pressure to avoid touching and damaging the circuit board inside of the simpleSwitch 240™.

- Use a fine-tooth hole saw to make one hole for the input cable connector and two holes for the output cable connectors in the side or bottom of the **simpleSwitch240™**.
- Avoid entry from top of simpleSwitch to reduce risk of water intrusion and inadvertent grounding of circuit board.
- Typical hole sizes:
 - 1/2" conduit connectors require a 7/8" hole.
 - 3/4" conduit connectors require a 1-1/8" hole.
 - 1" conduit connectors require 1-3/8" hole.
- Mount conduit/cable connectors to the **simpleSwitch 240™** housing.

7. Mount simpleSwitch 240™ to structure with appropriate screws or anchors.

- Use ONLY the external mounting holes. DO NOT put fasteners through the inside of the box because it may damage internal electronics.
- Four (4) external holes total, located in 4 corners of housing.



8. Turn off breaker that is designated for simpleSwitch 240™.

9. Turn off main electrical panel.

10. Run cable from power source to the simpleSwitch 240™.

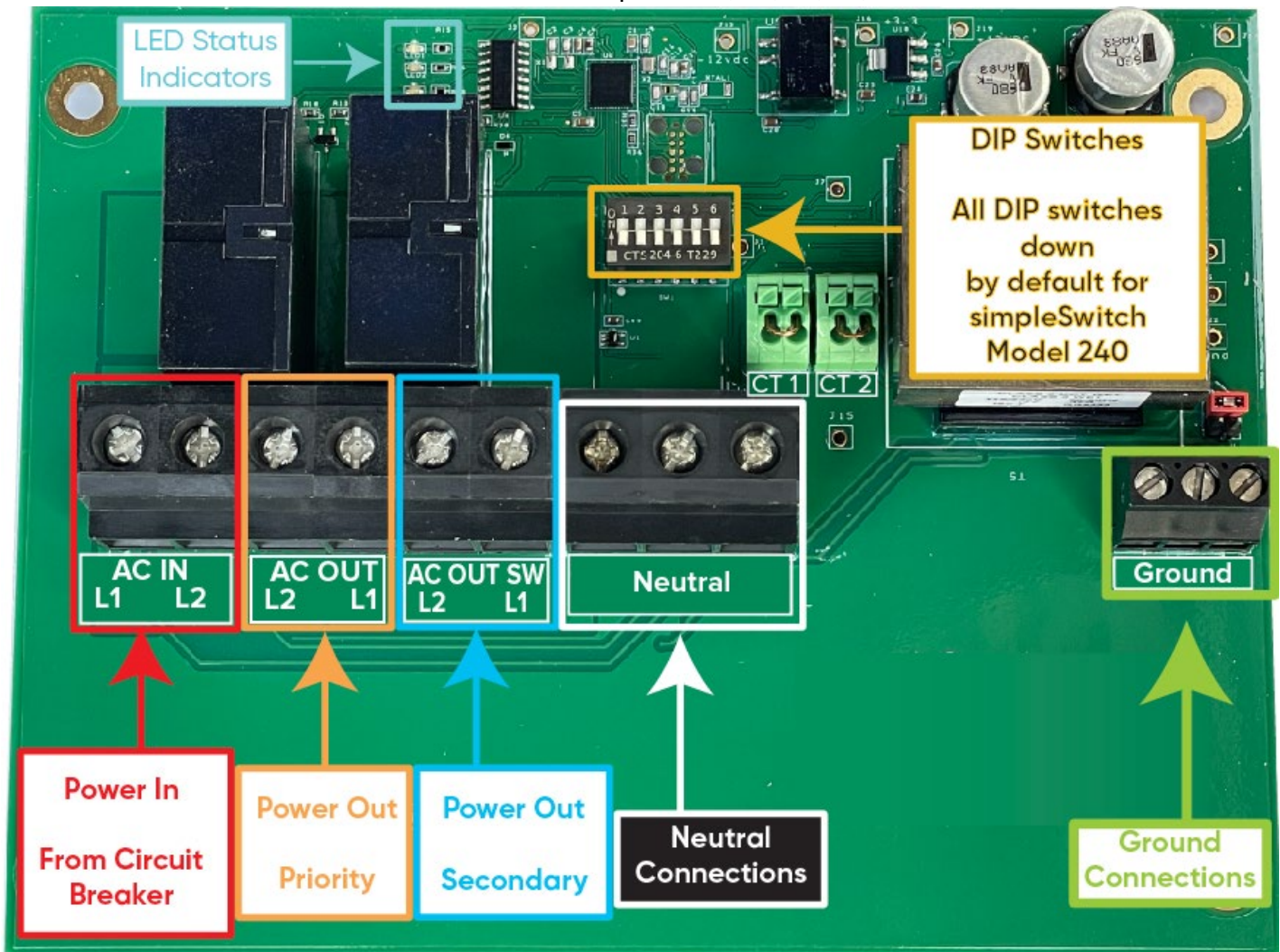
- a. From the designated circuit (in the Electric Panel Box) run cable into to the **simpleSwitch 240™** through the input connector leaving 8 inches of extra cable for stripping and connecting.
- b. Use conduit if required by local code.
- c. Note:
 - Minimum size conductor #14 Copper AWG
 - Maximum size conductor #6 Copper AWG

11. Run cables from simpleSwitch 240™ to appliance/device.

- a. From one exit fitting in the **simpleSwitch 240™**, run a cable to the Priority appliance, (or attach the existing Priority appliance cable through an exit connector). Leave 8 inches of extra cable in the **simpleSwitch 240™** for stripping and connections.
- b. Run a second cable through the other exit connector to the Secondary appliance (or a junction box or the power outlet required for the Secondary appliance). Leave 8 inches of extra cable in the **simpleSwitch 240™** for stripping and final connections.
- c. Use conduit if required by local code.

12. Connections to be made in accordance with image below (see steps 13, 14, 15, 16, 17 below).

- a. Note: DIP switch selection and positioning instructions #21
- b. Note: LED status indicator description #20, 22, 23, 24, 25



13. Connect the ground wires to the terminal block labeled **GROUND.**

14. Connect the power feed to the Terminal Strip inside the simpleSwitch 240™ housing.

- a. Strip 3/8" of the sheathing from the red and black conductors.
- b. If present, neutral wire is connected to the Neutral Terminal Strip (see instruction #17).
- c. The red and black wires from the circuit breaker are connected to the terminal strip in the simpleSwitch 240™ and labeled on the circuit board as **AC IN**:
 - Red connects to **AC IN, L2**.
 - Black connects to **AC IN, L1**.

15. Connect the "Priority" appliance to the Terminal Strip.

- a. Strip 3/8" of the sheathing from the red and black conductors.
- b. If present, neutral wire is connected to the Neutral Terminal Strip (see instruction #17).
- c. The red and black wires to the Priority appliance are connected to the terminal strip in the simpleSwitch 240™ and labeled on the circuit board as **AC OUT**:
 - Red connects to **AC OUT, L2**.
 - Black connects to **AC OUT, L1**.

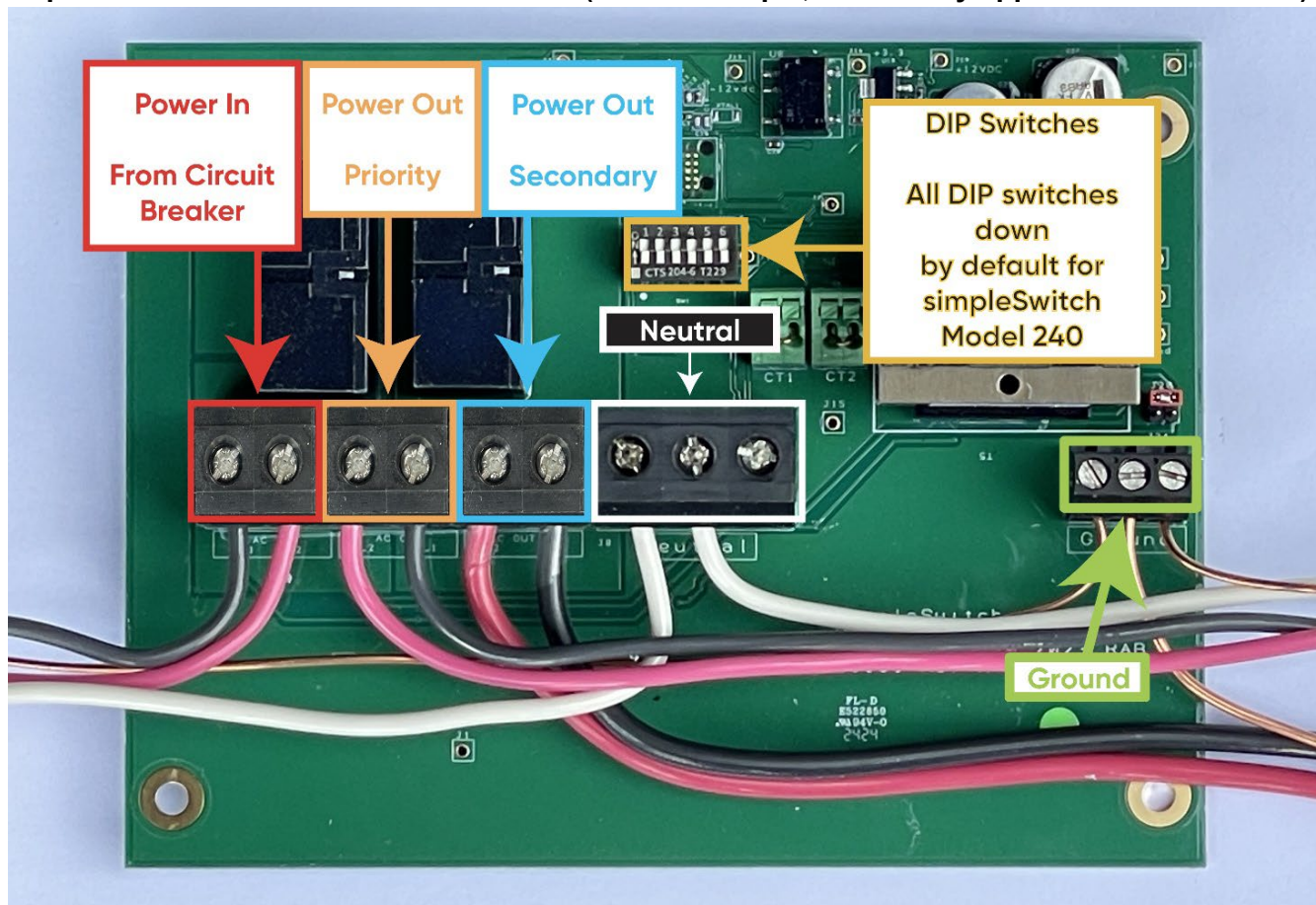
16. Connect the “Secondary” appliance to the Terminal Strip.

- Strip 3/8” of the sheathing from the red and black conductors.
- If present, wire is connected to the Neutral Terminal Strip (see instruction #17).
- The red and black wires to the Secondary appliance are connected to the terminal strip in the **simpleSwitch 240™** and labeled on the circuit board as **AC OUT SW**:
 - **Red connects to AC OUT SW, L2.**
 - **Black connects to AC OUT SW, L1.**

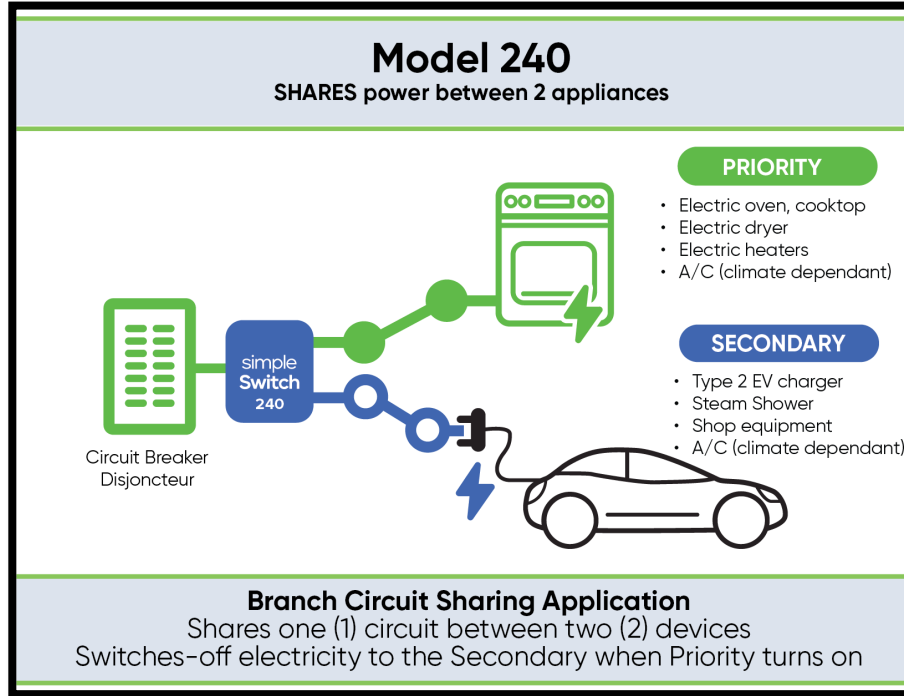
17. Devices with 120V Neutral wire.

- For devices that contain a neutral wire and use 120V power (e.g. clock on an electric range), that device should typically be set as the Priority device to maintain power to the 120V application (e.g. clock on an electric range).
- Connect neutral wires to the neutral termination strip within the **simpleSwitch 240™**.
- Note: With neutral conductors there is no order to the connection of input or output conductors to the neutral termination strip.
- Note: as part of our Fail-Safe design there is no power provided to the switched connection (Secondary Output) when **simpleSwitch 240™** internal Contactors disengage the Switched connection (Secondary Output) – power will be 100% cut off to the appliance connected to the Switched connection (Secondary Output).

Example of when conductors are connected (in this example, the Priority appliance has a neutral):



Confirm you have your Priority appliance and Secondary appliance connected to proper ports to achieve this functionality:



18. Finish installation of any modified or new junction boxes and outlets.

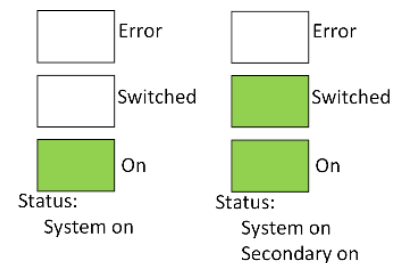
19. Turn the main panel breaker on.

20. Turn off calls for power from connected devices/appliances.

- Ensure calls for power are turned off from electrical devices connected to the **simpleSwitch 240™** (e.g., turn off call for A/C, turn off manual burners on range, turn off manual heater dials).

21. Turn on designated breaker for **simpleSwitch 240™**.

- The power on indicator LED will light Green.
- Approximately 2 seconds later the Secondary will switch on.



22. Set DIP Switches (applies to Model 240 only when a surge current device is connected to Secondary)

*Functional Note: DIP switch settings are only applicable to the Secondary output terminals of the **simpleSwitch™ Model 240** and only need to be revised from the default setting in limited cases.*

DIP switch settings may need to be revised based on the electrical device being connected to the **Secondary** output terminals of the **simpleSwitch** as follows:

Scenario A – No Surge Current

Electrical device **without a surge current on Secondary** (e.g. EV Charger):

- DIP switches should be set to default position “0” for applications without a surge current (motor load).

Scenario B – Surge Current (motor load)

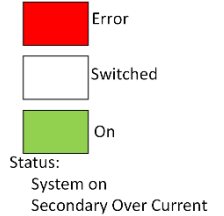
Electrical device **with a surge current on Secondary** output (e.g. Air Conditioner, Heat Pump, or other electrical devices with a surge current, typically containing a motor):

- DIP switches may or may not need to be adjusted depending on the level of surge current. Perform the following steps sequentially:
- First, power up the electrical device containing a surge current (e.g. A/C) with the DIP switches set in the default position “0”.
 - If the error light does not turn on, leave the DIP switch in the default setting (position 0).
 - If the Simple Switch error light turns on, that means that the motor load (surge current) duration is longer than the default setting, and a time delay needs to be set according to the duration of the surge current (typically several seconds, see next step).
- If error light was illuminated, the suggestion is to start at a 4-second delay (position 2), and restart/retest the device (e.g. A/C).
- If the **simpleSwitch240™** switches off the Secondary during the start of the AC motor (Power Surge) then set the delay to 8-seconds (position 3).
- If **simpleSwitch240™** still switches off the Secondary device during the start of the AC motor (Power Surge) then the device being connected to the **simpleSwitch240™** may not be suitable for the **simpleSwitch240™**. Please contact technical support in USA at (206) 494-3260 Ex 701 or Canada at (825) 777-7577.
- Set the dip switches according to the table below to set the time delay:

Position	Delay (sec)	sw1	sw2	sw3	sw4	sw5	sw6	DIP Switch Position
0	1	Down	Down	Down	Down	Down	Down	
1	2	Up	Down	Down	Down	Down	Down	
2	4	Down	Up	Down	Down	Down	Down	
3	8	Up	Up	Down	Down	Down	Down	

23. Electric Vehicle (EV) Charger.

- a. Electric vehicle charger should only be connected as the Secondary appliance in jurisdictions that require electric vehicle energy management systems (EVEMS) to have a fail-safe power disconnect to the Electric Vehicle Supply Equipment (EVSE or EV Charger).
- b. **Set the EV Charger PRIOR to plugging charger into the car** (as damage to **simpleSwitch 240™** may result if the car charger device is not properly set).
- c. Follow instructions from the EV charger supplier to ensure the **EV CHARGER DEVICE (NOT THE CAR) is set to a maximum charge rate of 48 Amps**. Higher amperage chargers may be connected to **simpleSwitch 240™** but **must: be set to a maximum 48 Amp charge rate on the WALL Charger itself (not the vehicle)**, and other electrical connections are sized according to standards and codes.
- d. If an Overcurrent Condition exists, the Secondary will switch off and the error status LED will light RED. The **simpleSwitch 240™** will retry in five (5) minutes and the red light will stay on until power is cycled to the unit.

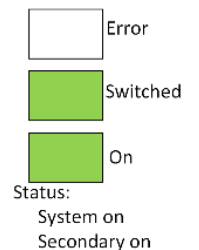


*In the event the **simpleSwitch 240™** continues to go into overcurrent protection the EV charger (wall unit) has likely not been set properly and drawing more than 50 Amps of current, reset the car charger to a maximum of 48 Amp draw.*

- e. Express Disclaimer: in no case shall the manufacturer of the **simpleSwitch 240™** or its distributors or resellers be responsible for improper installation or failure or damage to an electrical device connected to the **simpleSwitch 240™** or the **simpleSwitch 240™** device itself or other property, due to these instructions not being strictly followed. An installer, service provider, and homeowner should only follow these written instructions.
- f. In the event clarification is required, setup appointment with **simpleSwitch** technical support **BEFORE** completing installation, and prior to activating car charging.

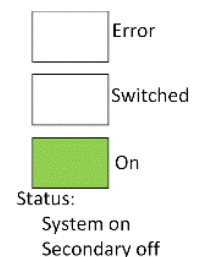
24. Check all internal **simpleSwitch 240™** connections for power with a multi meter.

- a. Note Status LEDs
- b. 208-240 volts at the AC IN connection.
- c. 208-240 volts at the LINE and AC OUT connection.
- d. 208-240 volts at the AC OUT SW connection.



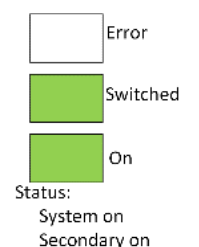
25. Turn on Priority appliance and check these internal **simpleSwitch 240™** connections with a multimeter.

- a. Note Status LEDs
- b. 208-240 volts at LINE.
- c. 0 volts at the **AC OUT SW** (Secondary appliance).
- d. 208-240 volts at **AC OUT** (Priority appliance).



26. Turn off Priority appliance and check these internal **simpleSwitch 240™** connections with a multimeter after the 5 minute wait period.

- a. Note Status LEDs
- b. 208-240 volts at LINE.
- c. 208-240 volts at **AC OUT SW** (Secondary appliance).
- d. 208-240 volts at **AC OUT** (Priority appliance).



27. Note on Delay.

- When the Priority appliance is turned on, the Secondary appliance is turned off.
- When the Priority appliance is turned off, there will be a **DELAY of 5 minutes** before power is restored to the Secondary appliance (AC OUT SW). *The reason for this delay is to ensure the Priority source is not being used (e.g. some appliance cycles' are close to 5 minutes in length).*

28. Install all covers.

- Fully tighten each of the four (4) tabs with a screw driver.
- **(Optional)**. If local code requires additional tamper resistance, cover can be secured with locks, through pre-drill holes in casing, see below:



Technical Support

USA: 206.494.3260 Ex 701
Canada: 825.777.7577



APPENDIX

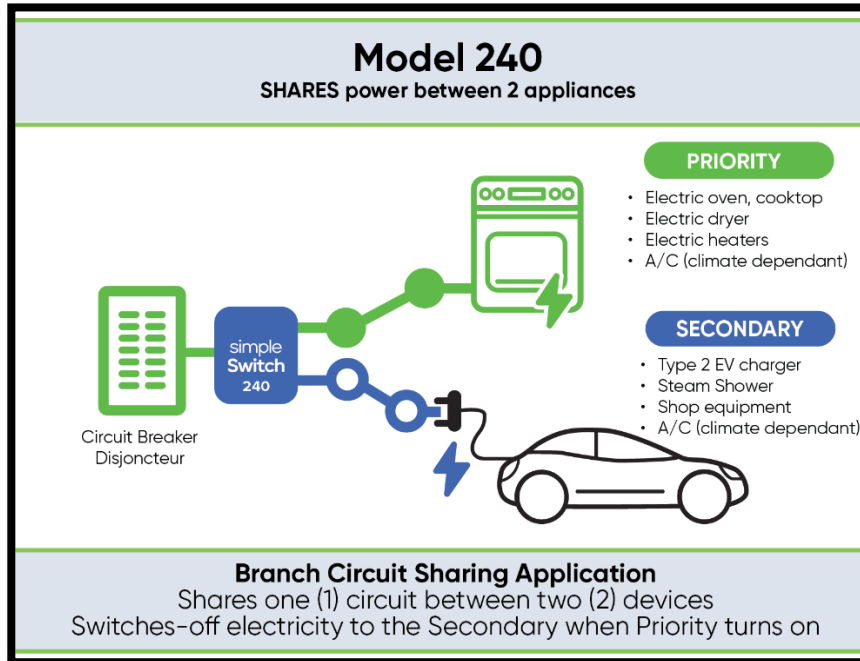
Flexible & Interchangeable Installation

The **simpleSwitch** is designed and programmed to be interchangeable in the following applications:

- Branch Circuit Sharing (**Model 240**) and
- Feeder Monitoring (**Model 240CT** is installed with external current transformers).

These are the installation instructions for Model 240.

If you wish to connect the **simpleSwitch** in the alternative application to these instructions, you must purchase external CTs from simpleSwitch or an authorized distributor and follow the alternative instructions for the Model 240CT. It is recommended that you call Simple Switch technical support for guidance and verbal orientation on converting the unit from Model 240 to Model 240CT.



Model 240CT
Requires External
Current Transformers

