



Franklin Home Power Quick Installation Guide

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Please read this document carefully to ensure the best reliability of the product and your warranty eligibility. For further information about warranty, please refer to the **Franklin Home Power Limited Warranty**.

This document is intended for use by professional installation and maintenance service providers only and no statements, information or recommendations in this document constitute any express or implied warranty.



Please read this document carefully before installing or using the Franklin Home Power equipment. Failure to follow any instructions or warnings in this document may result in damage to the equipment, personal electric shock, severe injury, or even death.

Product Information

Franklin Home Power (FHP) is composed of aPower, aGate and other electrical components, and this document applies only to the following products: aPower X and aGate X.

FranklinWH Energy Storage Inc. ("FranklinWH") reserves the right to make any improvements to the product, and the contents in this document shall be subject to updates without further notification.

All images and pictures provided in this Manual are only for demonstration purposes and may differ in detail from the product, based on the product version.

Feedback

If you have any questions or comments, please send us an email at: service@franklinwh.com

Disposal of Scrapped Products

Scrapped products (including their internal chemicals and electrical materials) should not be disposed of with household wastes. Please refer to your local laws and regulations regarding disposal.



Tools



DANGER:
 Special care must be taken to protect personal safety.
 PPE must be worn during transfer and installation.



WARNING:
 Please use proper protective measures, such as foam or protective cloth, keep aPower X and aGate X well protected from hard objects that may damage their exterior appearance or body during handling and installation.

Torque Requirements

Screws and their corresponding torques		
Screw Type	Cross head cross screwdriver	Tightening torque
M4	PH2	1.03lbf·ft (1.4N·M)
M5	PH2	2.21lbf·ft (3.0N·M)
M6	PH3	4.42lbf·ft (6.0N·M)

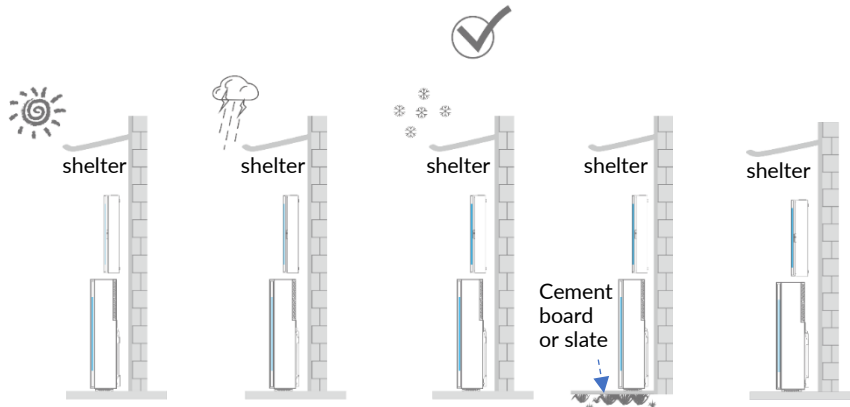
Please refer to the *Franklin Home Power Installation Guide* for more information.

Installation Requirements

Installation Environment

The aPower X and aGate X units can be installed indoors or outdoors.

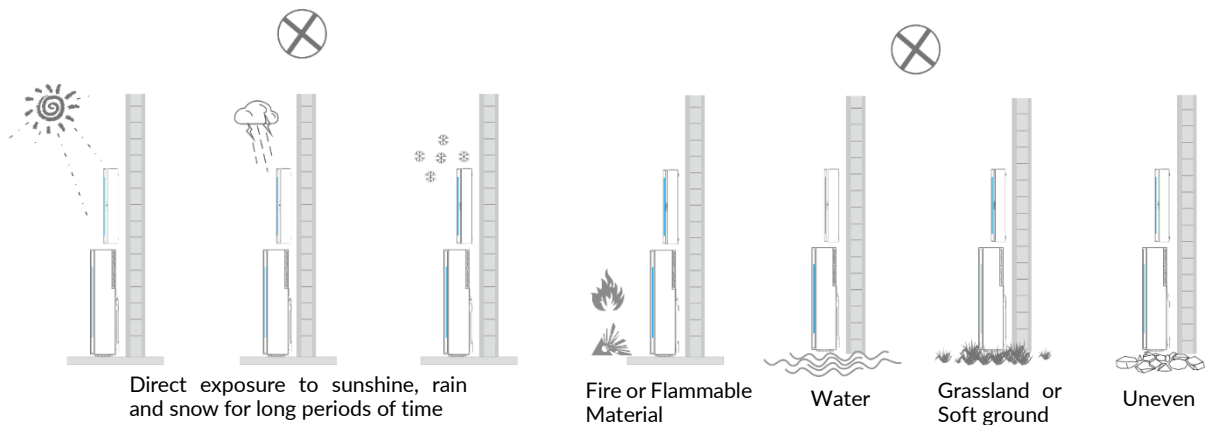
- If it is installed outdoors, it should be in a sheltered location that is protected from direct exposure to sunshine, rain and snow for long periods of time.



- Whether installed indoors or outdoors, the noise factor (< 45dB) must be taken into account when selecting the installation site for each aPower X.

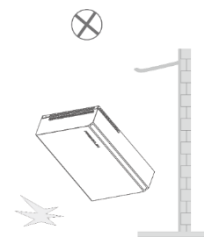
The aPower X and aGate X installation area should be kept dry, cool, and well-ventilated.

The aPower X and aGate X installation area should be protected from access by children and away from any source of heat and/or fire, water, flammable, explosive materials, dust, smoke, uneven, and grassland or soft ground.



DANGER:

- Please handle with care.
- Do not use a dropped product or a product that has been subjected to a strong impact force. Otherwise, safety risks (such as cell leakage and electric shock) may arise.



Installation Method

aPower X supports floor-mounted installation and wall-mounted installation. A mounting bracket is required to hold the equipment to the wall.

aGate X may be wall mounted or embedded in the wall.

Installation Space

- aGate X:

There should be a minimum clearance of 5D (D is the outer diameter of electrical conduits) from the aGate X bottom to the floor and from the top of the aGate X to the ceiling. The recommended distance between the bottom of the aGate X and the ground is 48in. (1.22m) and should not exceed 64in. (1.63m). The maximum distance between the power switch button on the aGate X and the ground shall not exceed 90in. (2.29m). Please finalize the installation height in accordance with the specific site conditions.

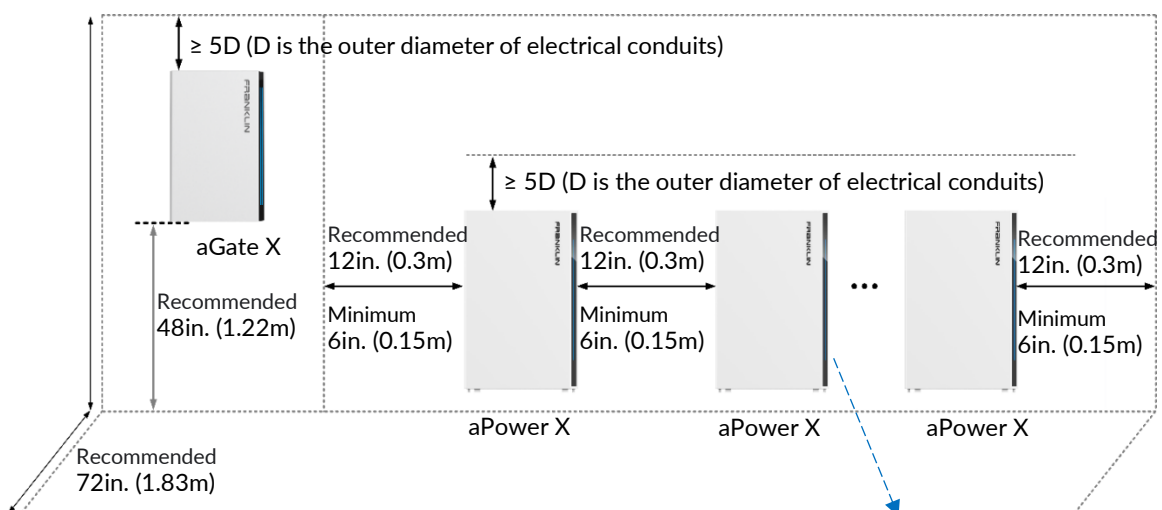
- aPower X:

There should be a minimum clearance of 5D (D is the outer diameter of electrical conduits) from the top of aPower X to the ceiling.

When the aPower X is mounted on the wall, the recommended distance between the bottom of aPower X and the ground is 18in. (0.45m), but not exceed 53in. (1.34m). The maximum distance between the aPower X switch button and the ground should not exceed 90in. (2.29m).

The recommended distance between multiple aPower X units is 12in. (0.3m), with a minimum of at least 6in. (0.15m).

- The recommended space distance in front of the wall in the installation area is 72in.(1.83m).



The distance between the bottom of aPower X and the ground is not exceed 53in. (1.34m).

- Maximum allowable cable length between data exchange devices.

Data interchange equipment	Maximum cable length
aPower X and aGate X	98.4ft (30m)
aGate X to Generator	98.4ft (30m)
aGate X to Router	328.1ft (100m)
Split CT	49.2ft (15m)

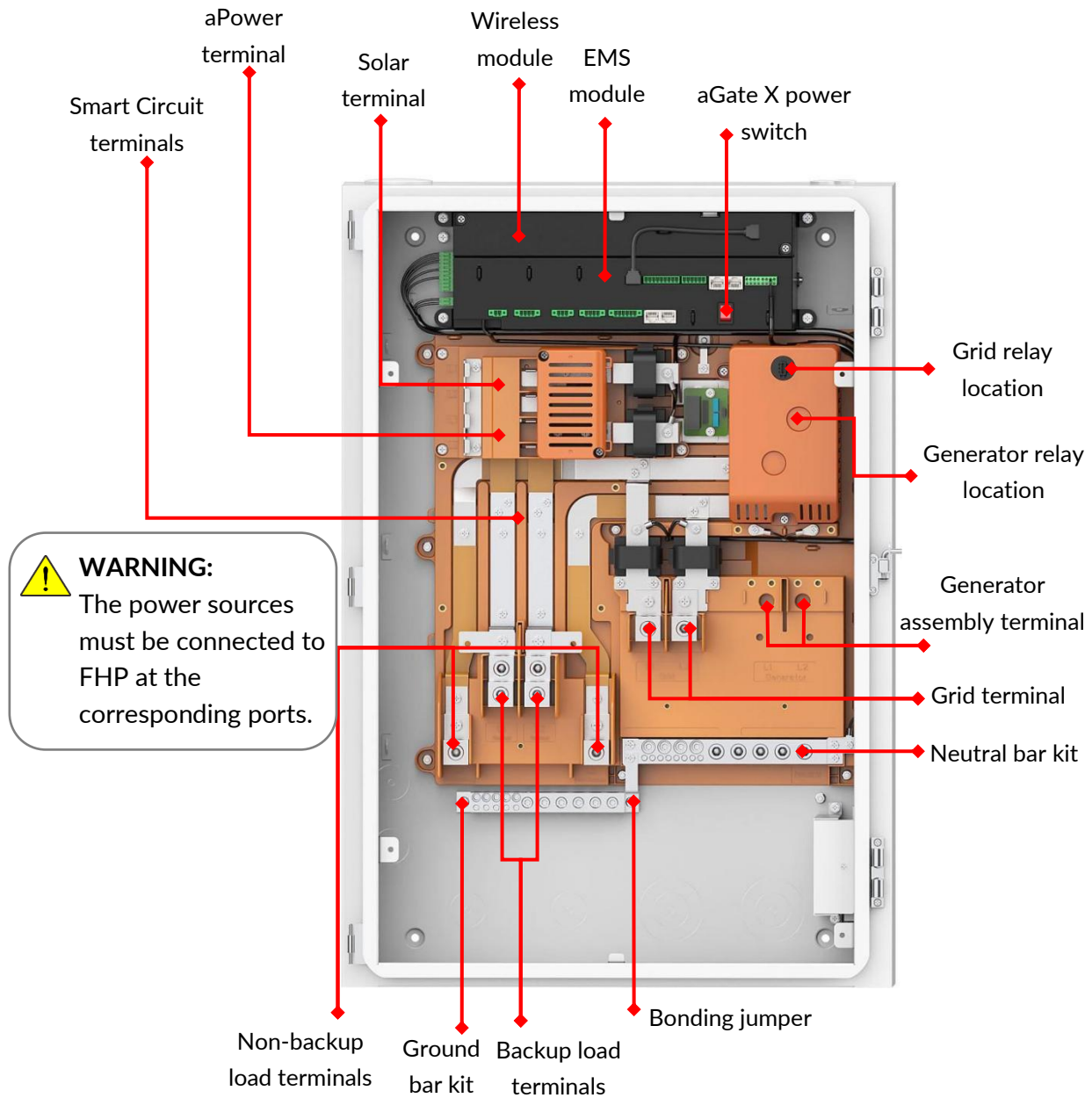
**DANGER:**

Avoid drilling holes in the water pipes and cables buried in the wall.

**WARNING:**

- Cover the aPower X top heat dissipation hole to protect from gravel dust during drilling.
 - To avoid damage to equipment, completely shield all aGate X interior electrical boards and components before you drill or punch holes, to avoid debris falling into the aGate X. Clean and remove all debris before installing any components or wiring into the aGate X.
 - Final installation method and spacing to comply with licensed Structural Engineering Design wherever required.
 - Must comply with all local codes and standards.
-

Introduction to the aGate X



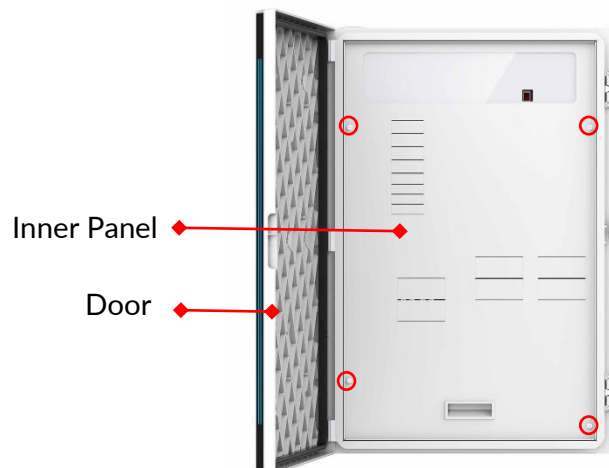
Name	Max Current
Solar terminal	80A
aPower terminal	100A
Smart Circuits 1, 2	50A
Smart Circuit 3	80A
Grid terminal	200A

Name	Max Current
Generator terminal	200A
Busbars	280A
Non-backup load terminals	160A
Backup load terminals	160A
Combiner box breakers	30A

Remove the Inner Panel and Door from the aGate X

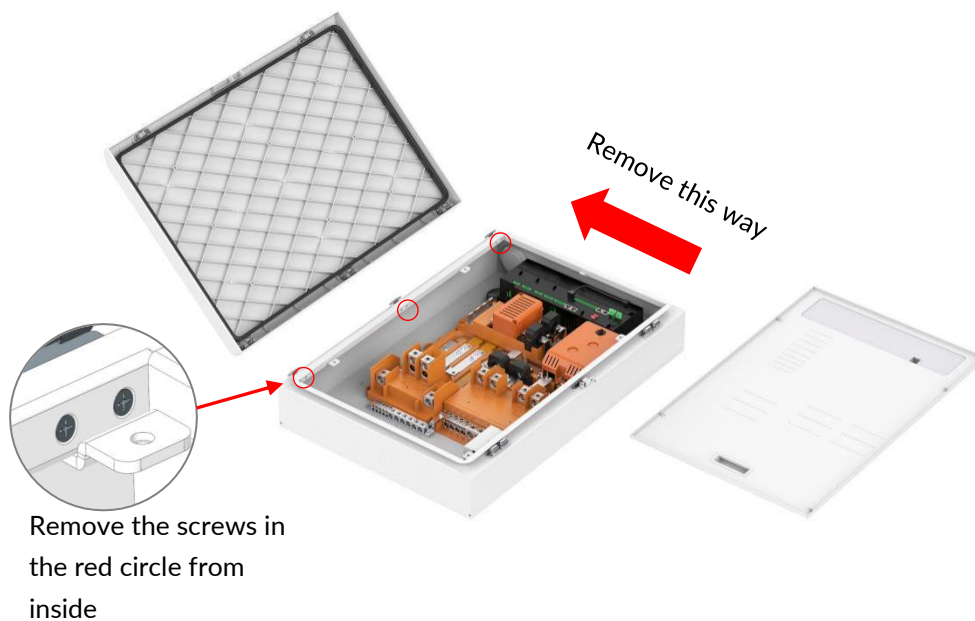
- Remove the Inner Panel

Use a #3X4" Phillips head screwdriver or an electric screwdriver with a Phillips head cross screw bit. Turn the 4 combination screws fastening the inner panel counterclockwise to remove the screws. Remove the aGate X inner panel and properly store it.




- Remove the Door

Use a #2X4" Phillips head screwdriver. Turn the 6 countersunk screws fastening the hinges on the aGate X door counterclockwise to remove the screws. Remove the aGate X door and properly store it.



Mount the aGate X on a Wall



 Included Sealing washers (x4) must be installed

Based on the preplanned installation position and electrical conduit arrangement, the installer may choose to remove the knockouts or plugs in the aGate X.

**DANGER:**

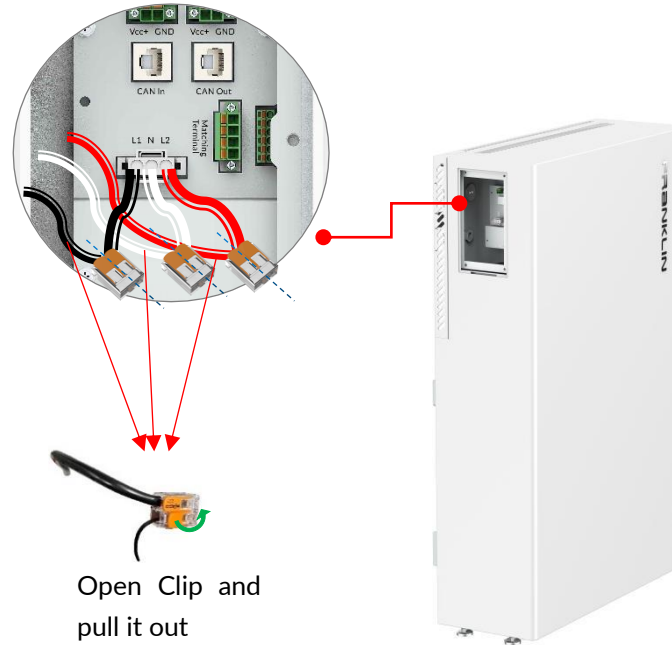
Avoid drilling holes in the water pipes and cables buried in the wall.

**WARNING:**

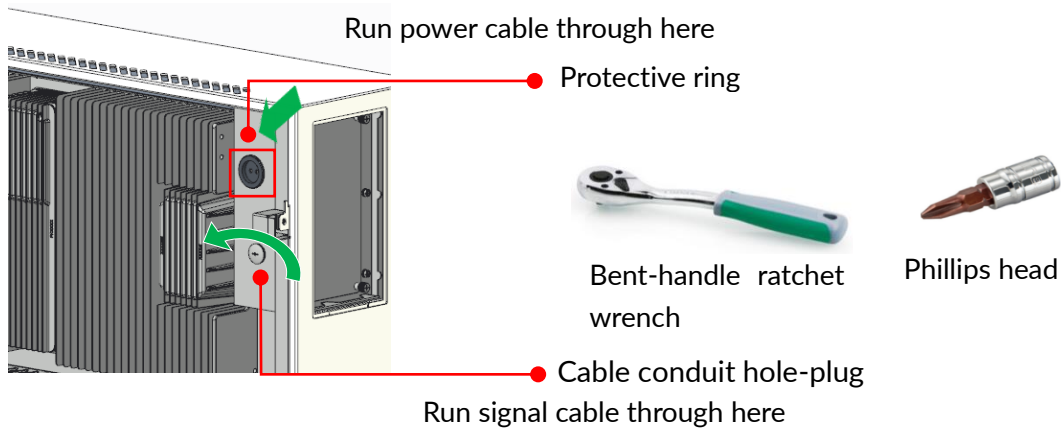
- Cover the aPower X top heat dissipation hole to protect from gravel dust during drilling.
- To avoid damage to equipment, completely shield all aGate X interior electrical boards and components before you drill or punch holes, to avoid debris falling into the aGate X. Clean and remove all debris before installing any components or wiring into the aGate X.
- Add lightning protection measures to the FHP according to NFPA 780, UL96A, and LPI-175.
- It is recommended to install cables through the bottom of the aGate X. If a top inlet cable is installed, waterproof measures must be taken.

Remove some aPower X accessories

- Open the aPower X wiring compartment cover, and remove the 3 external cables.



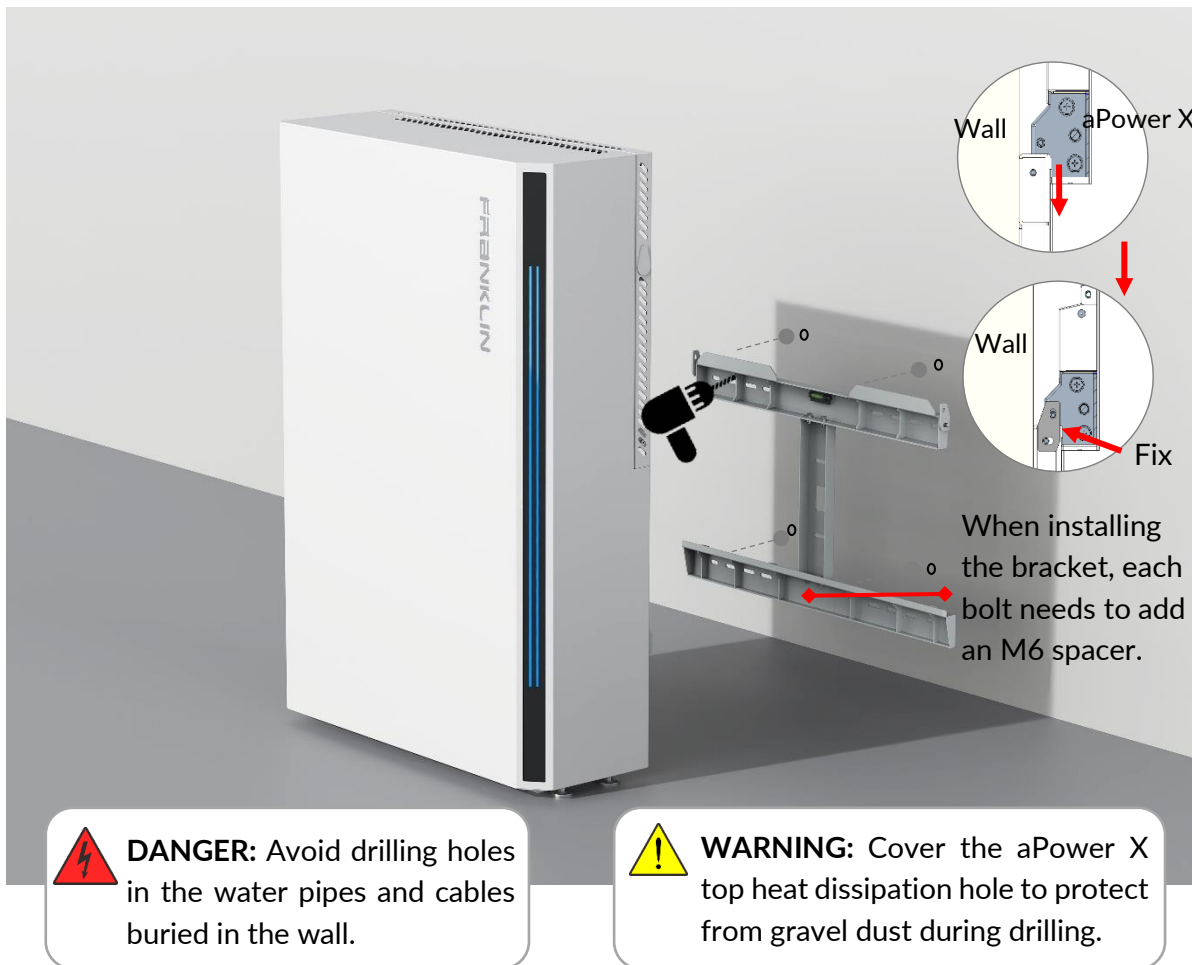
- Remove the protective ring from the inside out.
- If a signal cable hole is needed, remove the cable conduit hole-plug. Turn the plug counterclockwise using a bent-handle ratchet wrench with a Phillips head, while keeping the interior fastening nut in position. When loosening, rotate by hand until the plug is removed.




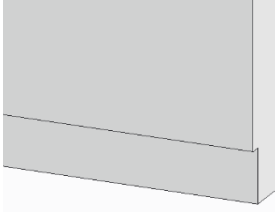
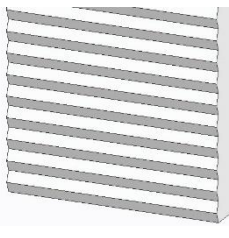
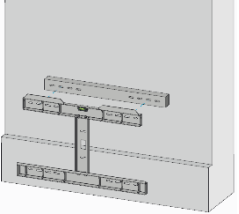
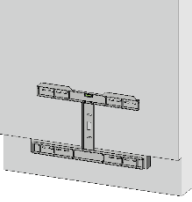
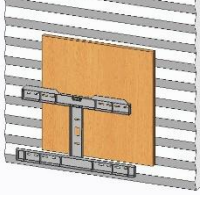
WARNING:

Connect cables in accordance with local installation laws and regulations.

Installing the aPower X



Special Wall/Baseboard Installation

Case 1: Protruding Baseboard Height > 6in. or the thickness of the bulge > 1in. (Floor mount)	Case 2: Concave Baseboard Height > 6in. (Floor mount)	Case 3: Uneven Wall
		
Solution Use wooden or steel spacers on the upper part of the bracket (to keep it flush with the baseboard).	Solution Use wooden or steel spacers on the dented part of the baseboard (to keep it flush with the wall).	Solution Use plywood or gypsum board to level the wall. The recommended thickness is 0.5in.
		

**NOTE: These wooden or steel materials are prepared by the installer.*

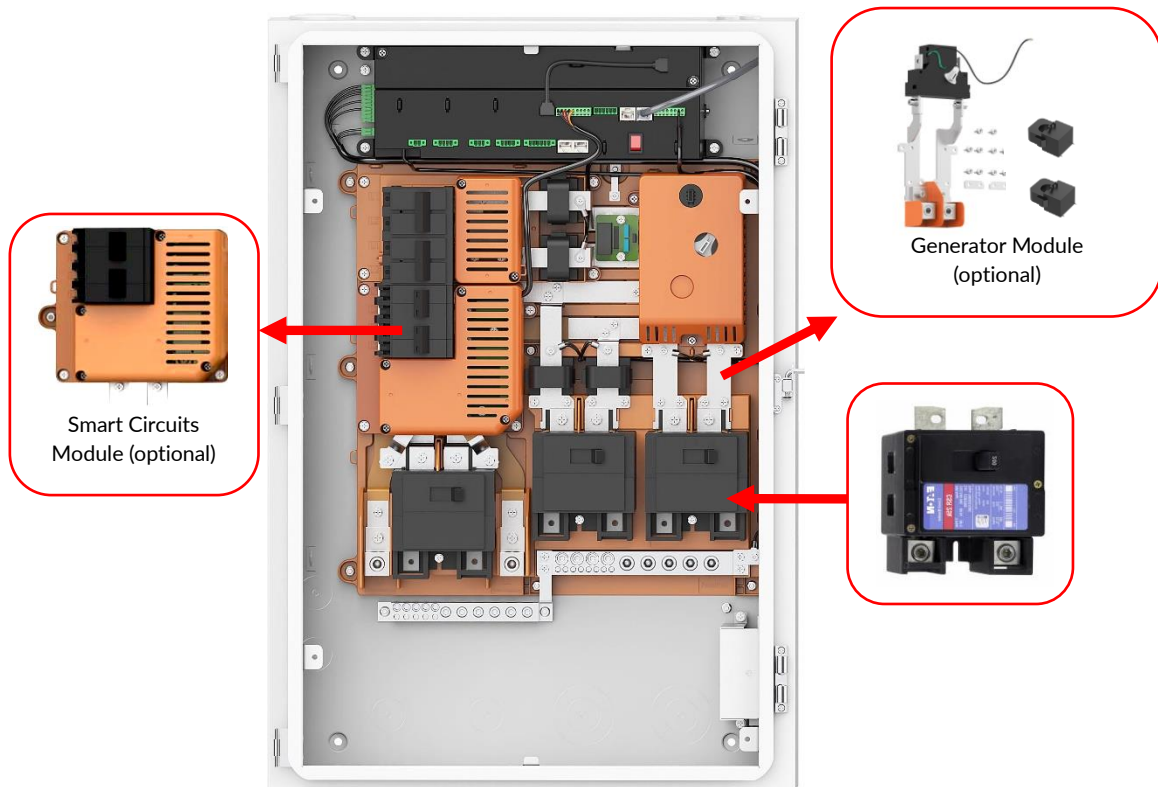
Breakers and Optional Parts

The circuit breakers are optional parts and must be provided by the installer.

- Standard configuration

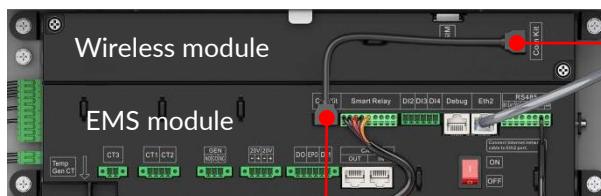


- Full configuration



Communications Wiring

- Connect a **Com Kit (4G & Wifi)** cable to **Activate** the aGate X commissioning functions.



Com Kit
(4G & Wifi)



WARNING:

Use only the USB cable supplied with the equipment. The aGate X cannot be activated if this step is not completed.

- Communications Cable Preparation



- ① Remove the insulation jacket from the cable.
- ② Fan the wires in the order of **568B (white/orange, solid orange, white/green, solid blue, white/blue, solid green, white/brown, solid brown)**. Insert the wires into the connector.
- ③ Crimp the connector using a crimping tool.

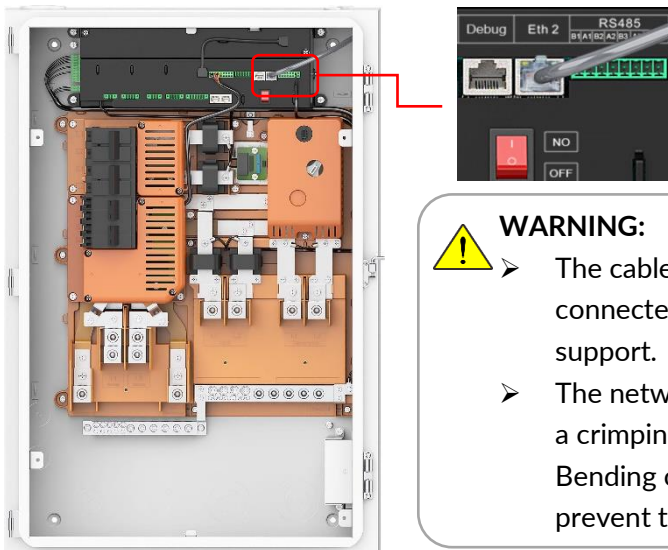
WARNING:

Before connecting the assembled cable, use a network cable tester to ensure that the cable is working correctly.

When testing, the cable must be disconnected from the device.

- Connect the aGate X to the network for remote access to the FHP

To ensure the reliability of remote communications, it is recommended to insert the home network cable with an internet connection into the **Eth2** port of the EMS module, in order to enable the remote communications function.



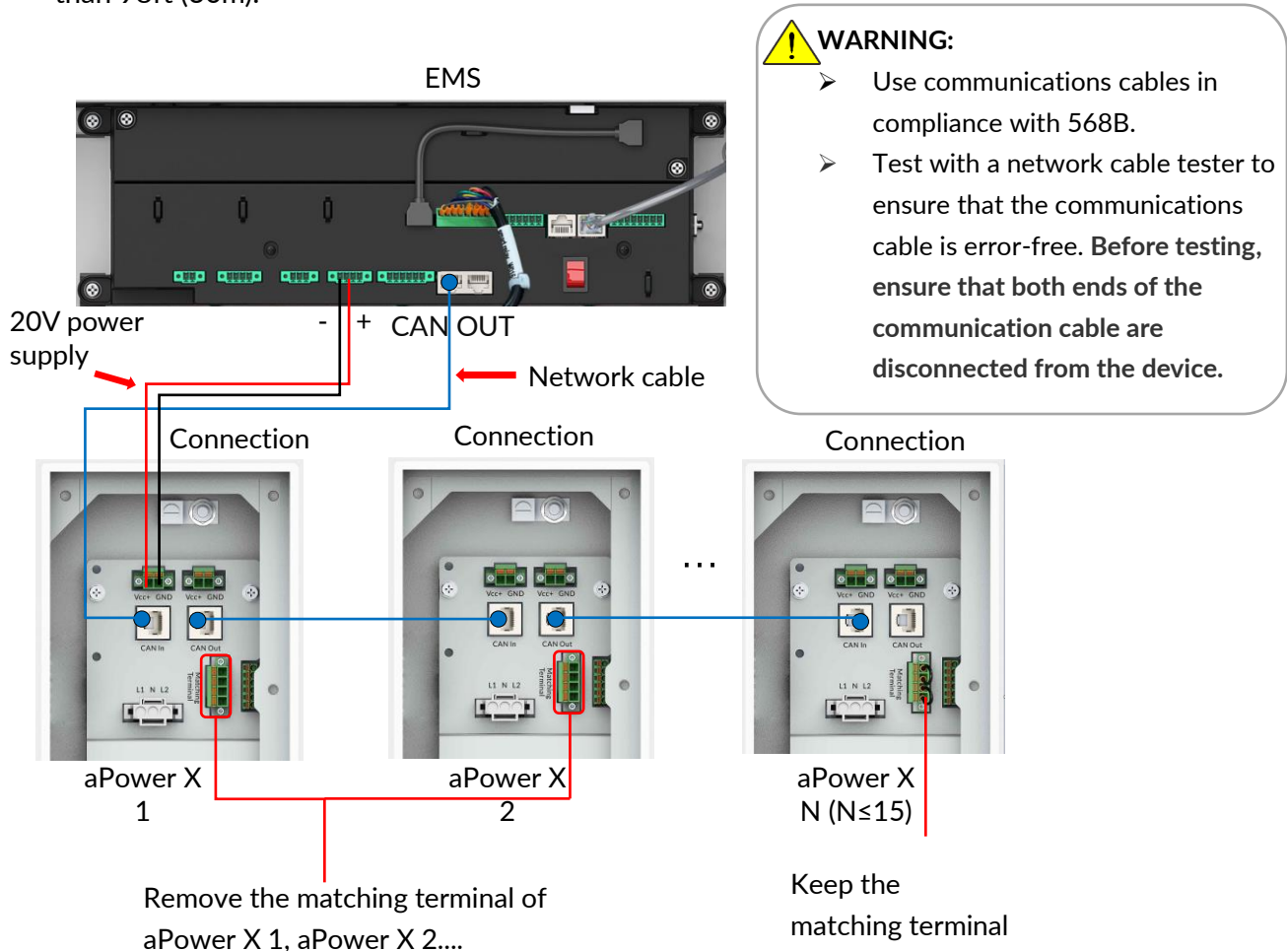
WARNING:

- The cable from the household network may only be connected to the Eth2 port, as Eth1 port is used for support.
- The network cable needs to be made on site using a crimping tool according to the 568B standard. Bending of a unibody cable inside the aGate X may prevent the inner cover from closing.

- Communications connection between the aGate X and the aPower X

When the length of the communications cable between the aGate X and the aPower X is less than 98ft (30m), a communications cable can be used to connect.

Both the communications cable connection and 20V power supply must be used in conjunction when the communications cable length between aGate X and aPower X is longer than 98ft (30m).



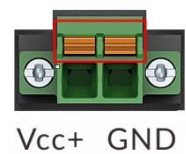
WARNING:

When more than one aPower X unit work in parallel mode, it is necessary to remove the excess matching terminals from all aPower X units along the loop except for the matching terminal on the last aPower X.



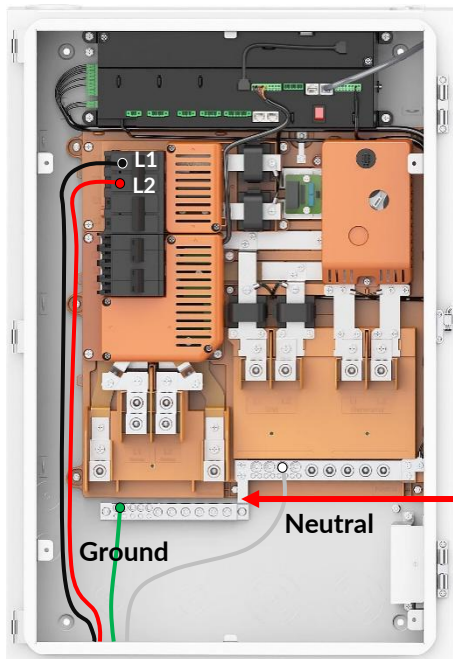
NOTE:

- If the communications cable shares the same conduit with power wires, please use a Type 600V TC insulated communication cables (with metal connectors).
- When the system needs to be connected to the 20V power supply, the terminal does not need to be removed. Just press the orange switch of the port, insert the prepared wire, and then release the switch to complete the wiring.



Power Wiring Diagram

- Solar Inverter Connections to the aGate X



- L1
- L2
- Neutral
- Ground

WARNING:

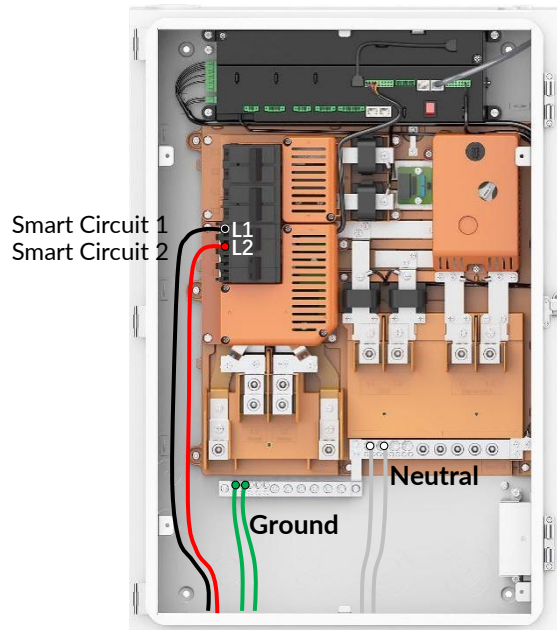
- The solar circuit breaker is the only interface for the solar inverter to be connected to the aGate X.
- The aGate X has a built-in solar CT.

According to NFPA 70-250 Grounding and Bonding Part V, when installed as service equipment, the neutral and ground should be bonded together as shown in the picture on the left. The Neutral-Ground Bonding Jumper must only be removed if not installed as service equipment or for test purposes.

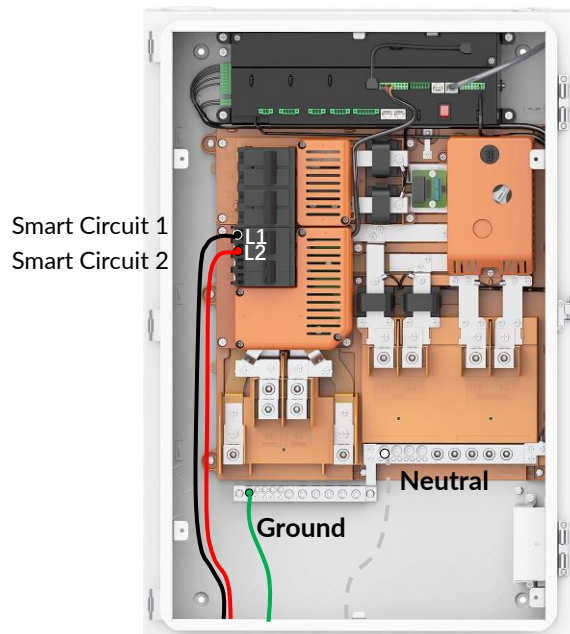
NOTE: All breakers are to be provided by installer or customer.

- Smart Circuit Connections to the aGate X (optional)
 - 1) Wiring of Smart Circuit 1 and Smart Circuit 2 is subject to the following practical conditions.

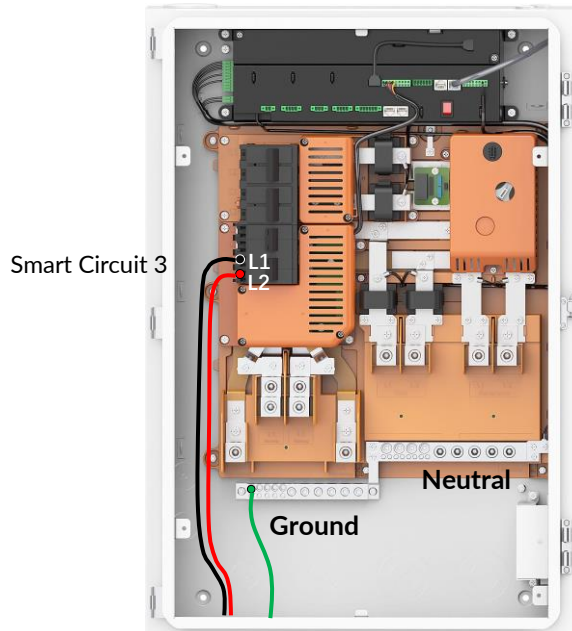
- If Smart Circuit 1 and Smart Circuit 2 connect two 1-pole breakers, connect the load wires to the Smart Circuit module output terminals on aGate X (L1, L2, Neutral & Ground), as shown below.



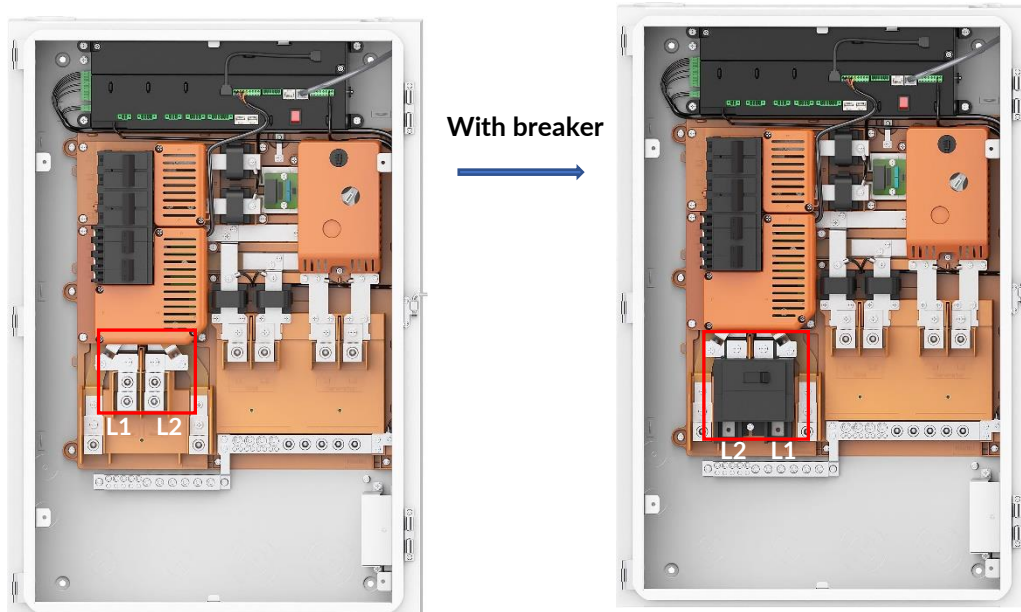
- If Smart Circuit 1 and Smart Circuit 2 connect one 2-pole breaker, connect the load wires to the Smart Circuit module output terminals on aGate X(L1, L2 & Ground). The neutral wire needs to be connected or disconnected according to the demand of the load, as shown below.



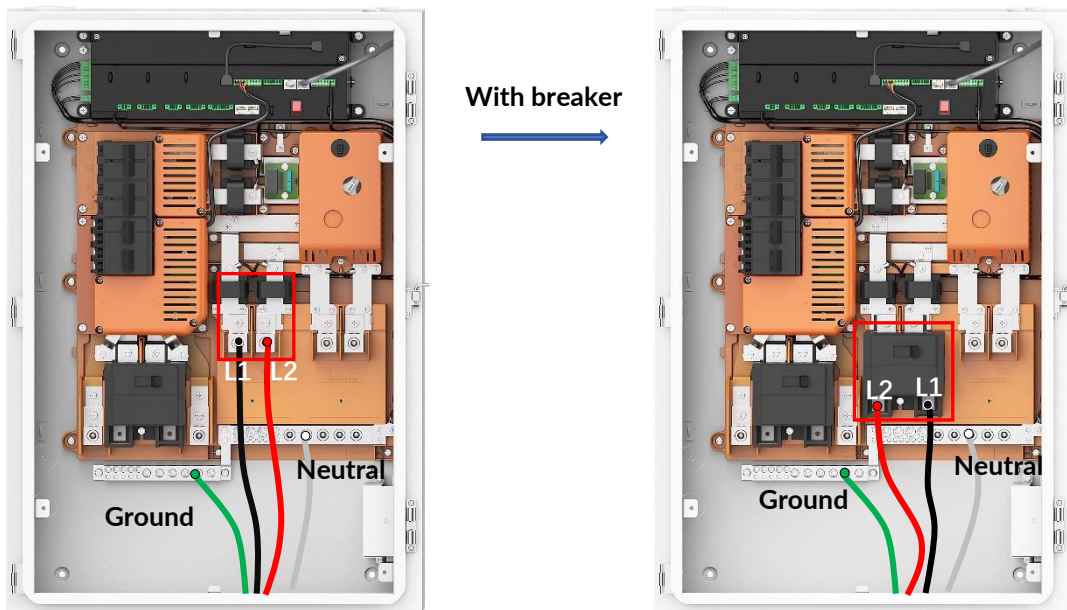
- 2) Smart Circuit 3 is only used for 240V loads without a neutral wire. No device requiring a neutral wire should be connected to Smart Circuit 3. Connect the load wires to the Smart Circuit module output terminals on aGate X (L1, L2 & Ground), as shown below.



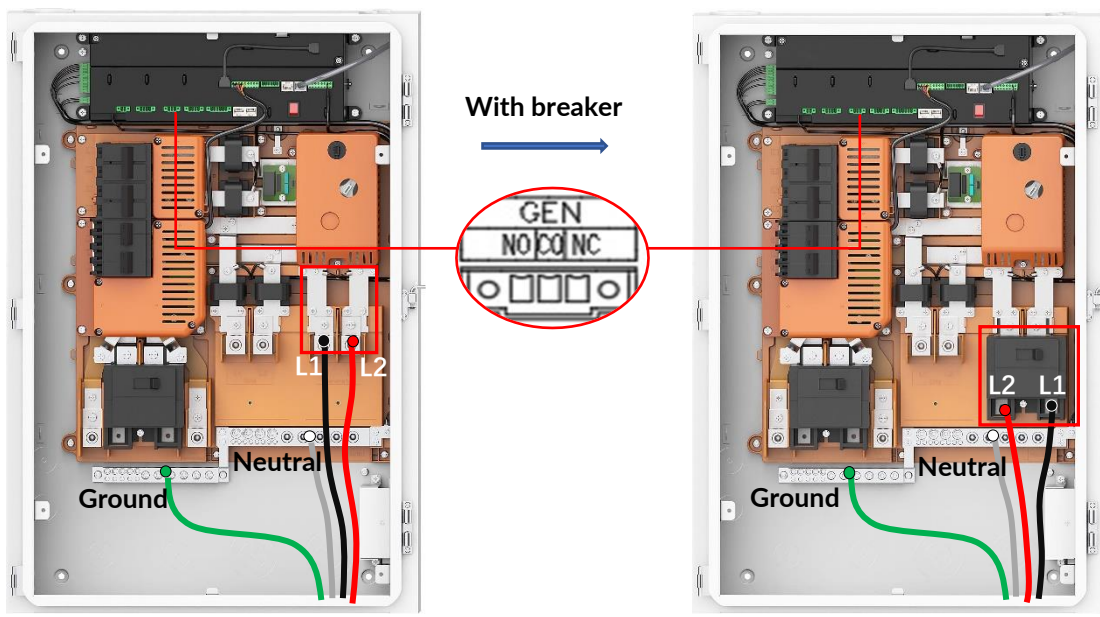
- The backup load terminals with a breaker (optional)



- The Grid AC Power Connections to the aGate X (optional)



- Generator Power Connections to the aGate X (optional)



DANGER:



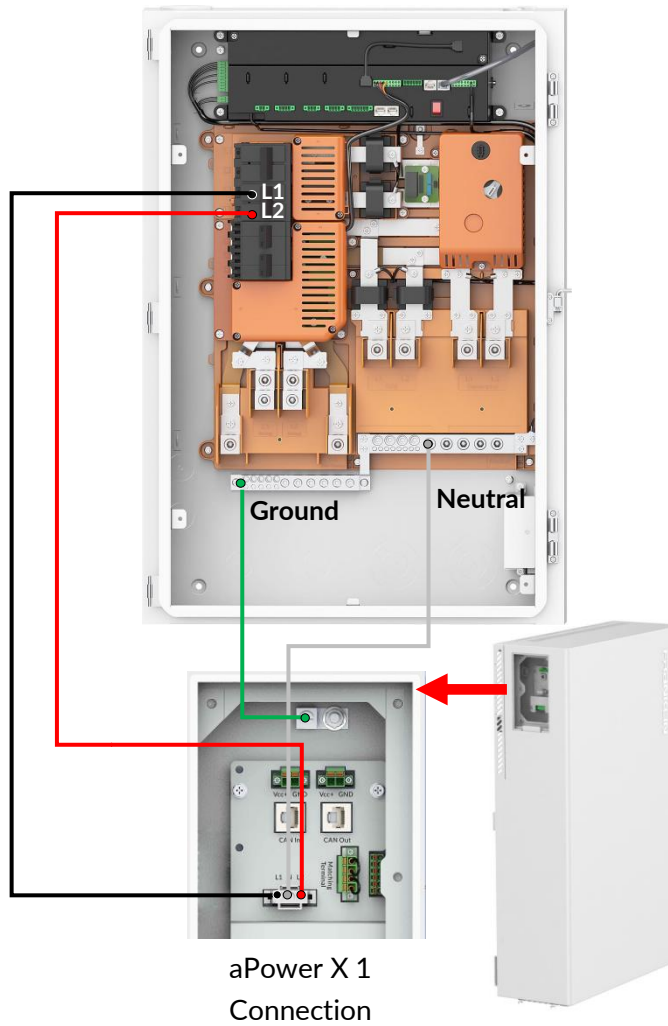
After installation of the backup load terminals breaker, grid breaker and generator breaker, L1 and L2 will swap sides for connections (L2 is located to the left while L1 is to the right).

NOTE:



- If aluminum cable is used, the cable connectors need to be treated using antioxidant.
- If signal exchange is needed between the generator and the aGate X, please refer to the generator’s manual.

- aPower X connections to the aGate X (One aPower X unit)



The WAGO terminals of the aPower X can only be connected using 10AWG power wire. The recommended strip length for the cable connected to the WAGO terminal is 0.47 to 0.55in. (12 to 14mm). To connect the other end of the cable to the breaker, determine the cable stripping length based on the breaker you configured.

The WAGO terminals of the aPower X connection



WAGO terminal

WAGO

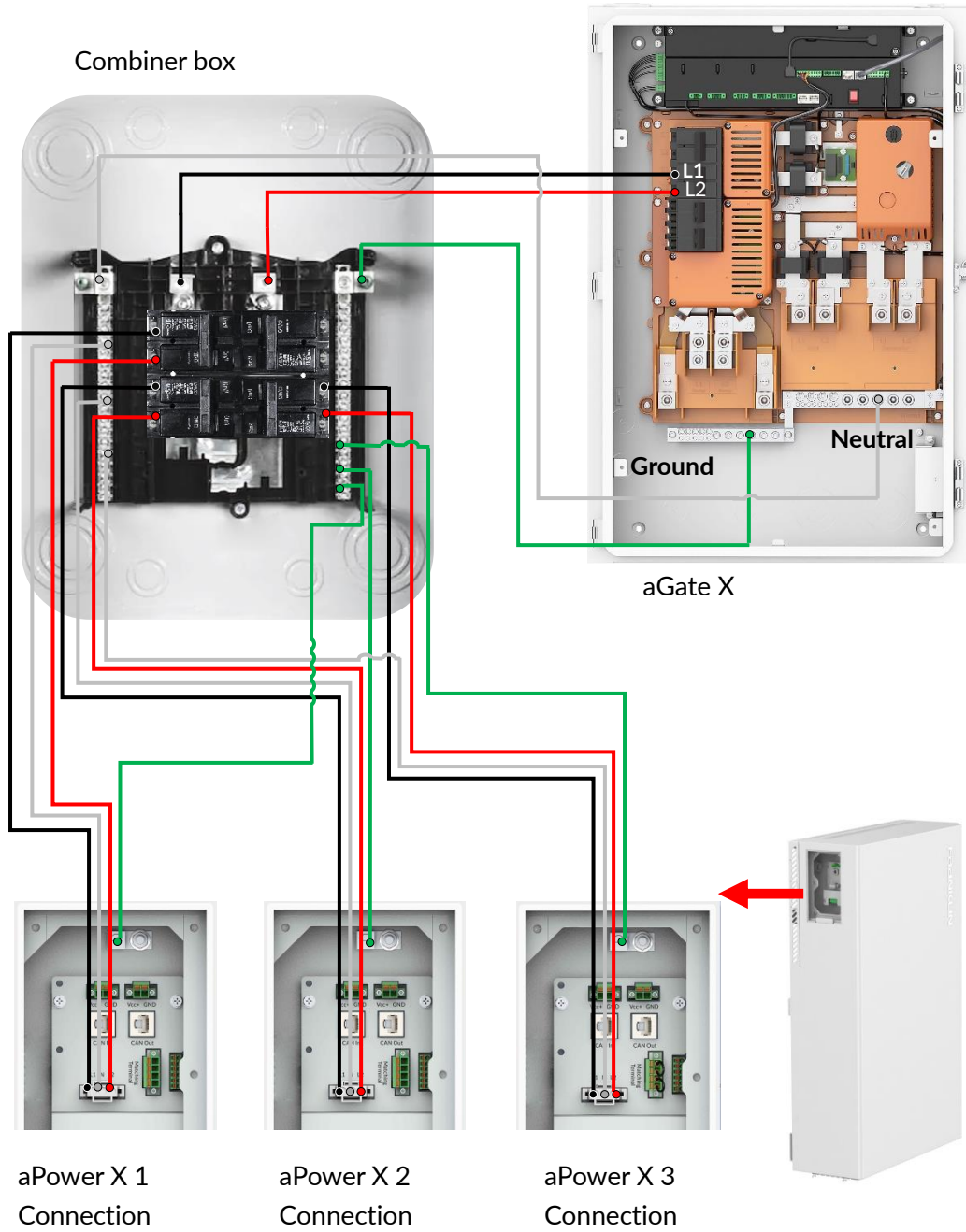
0.47~0.55in.



WARNING:

If the stripped length of the cable inserted into the WAGO terminal is too long, some metal cables may be exposed, which may damage the device or cause electric shock.

- aPower X Connections to the aGate X (2 to 3 aPower X units)



aPower X 1
Connection

aPower X 2
Connection

aPower X 3
Connection



WARNING:

The WAGO terminals of each aPower X can only be connected using 10AWG power wire.

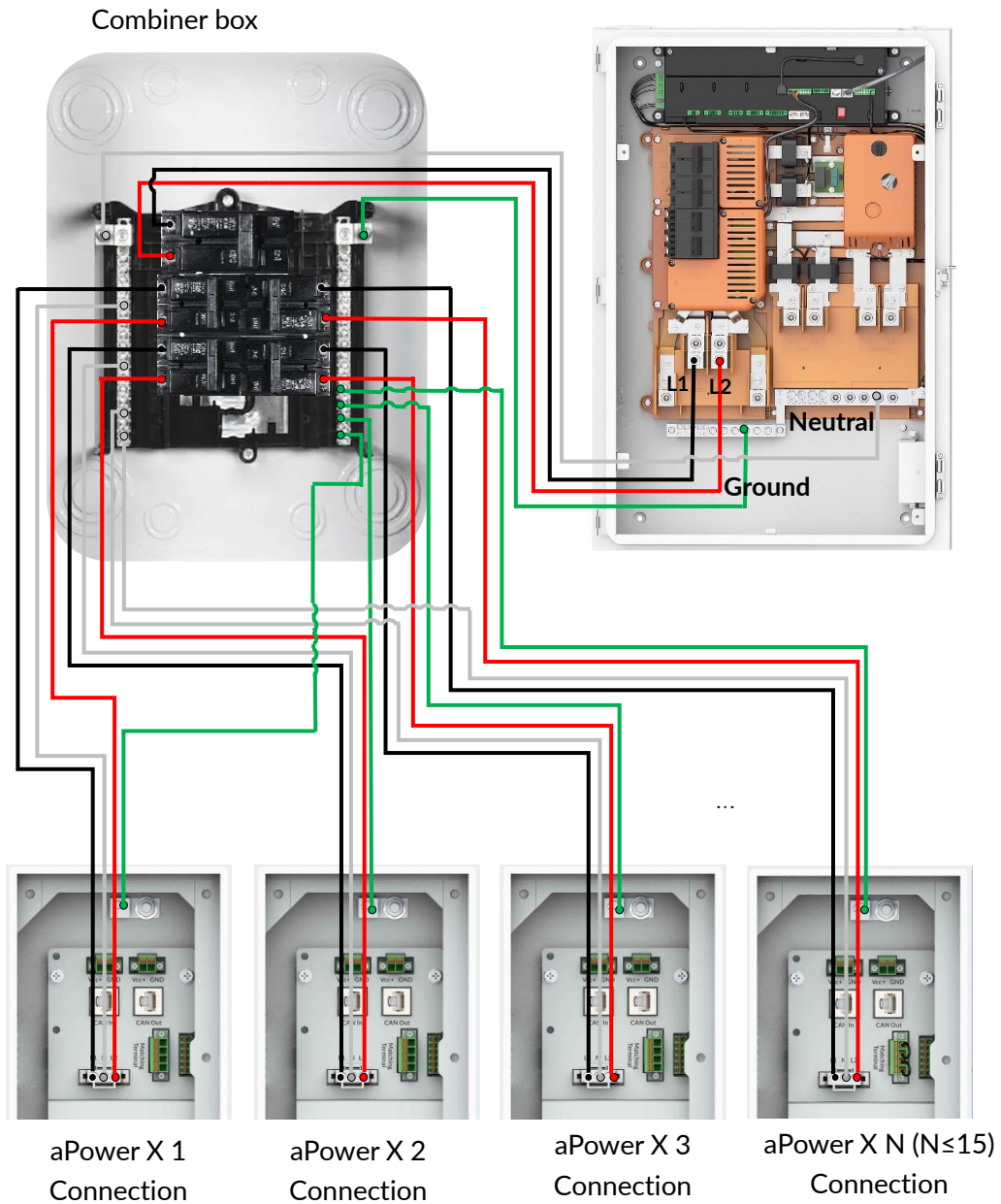
- Connect more than 3 aPower X units to the aGate X (Please consult FWH for technical support).

The maximum size circuit breaker for the aPower port is 100A. If it is enough for the user, it can be connected to the aPower terminals of the aGate X. If the user needs to connect a circuit breaker larger than 100A, only connect to the aGate X backup loads terminals. Users need to select the access mode according to the actual situation.

Method 1: The aPower X units are connected through a combiner box to the aGate X backup load terminals

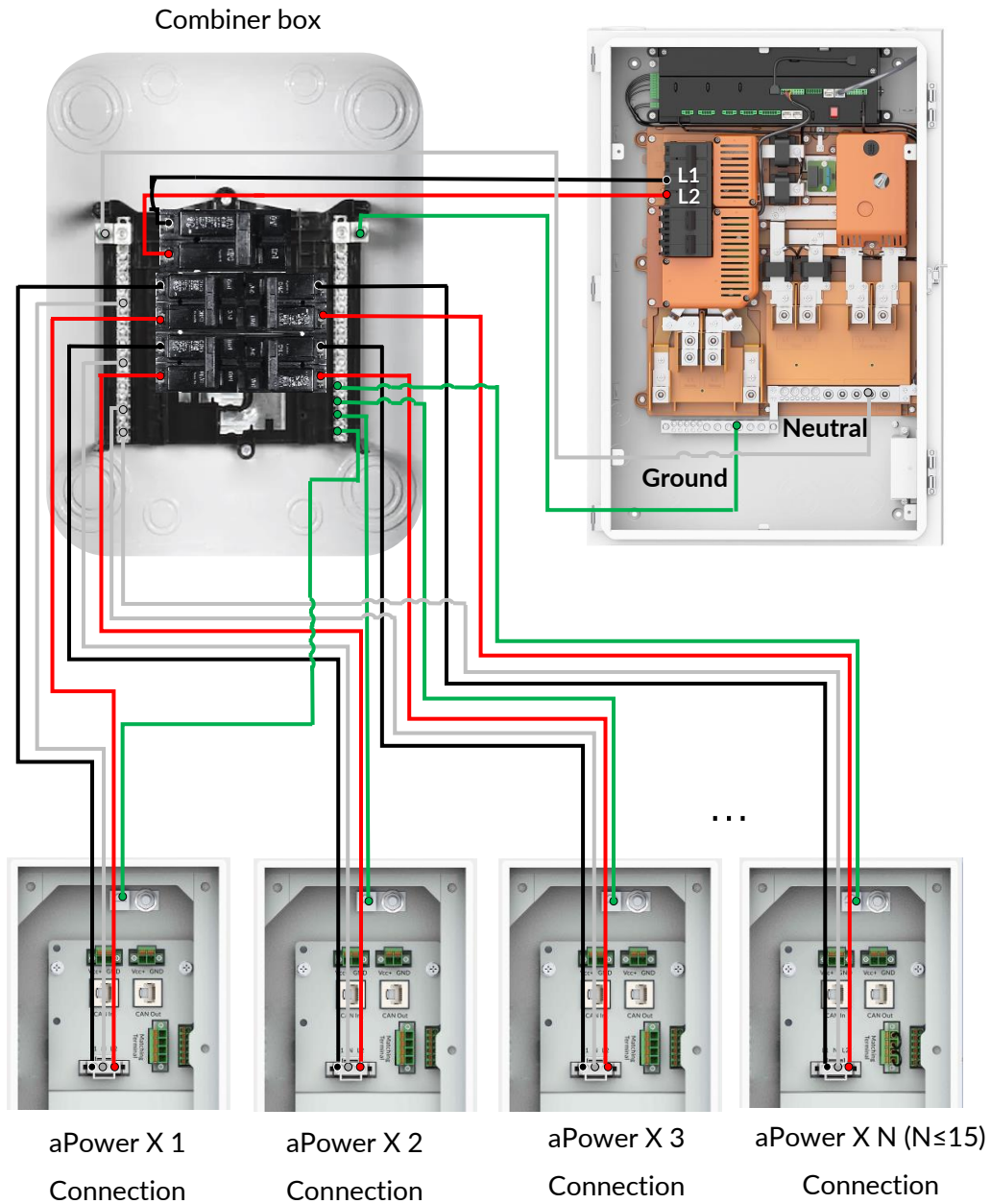
There are two (2) sets of lugs on the aGate X backup load terminals. When connecting more than 3 aPower X units to the aGate X, use one (1) set for the aPower X input and one (1) for the backup main panel output.


In this scenario, the combiner box must have a main circuit breaker that connects to the aGate X.



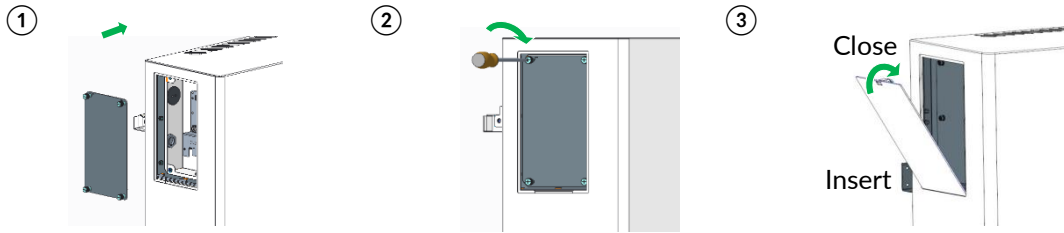
Method 2: The aPower X units connect through a combiner box to the aPower X terminals of the aGate X

When connecting more than 3 aPower X units to the aGate X, use one (1) pair wires for the aPower X connection to the combiner box and one (1) pair wires for the aPower terminals of the aGate X connecting to the combiner box.

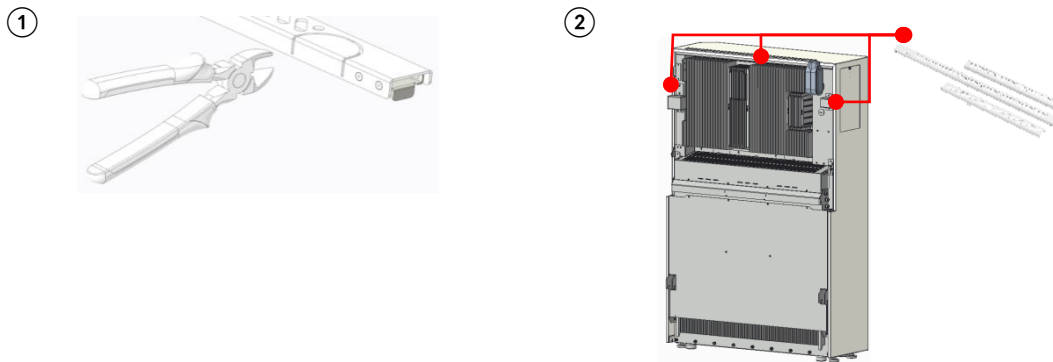


WARNING:
 The WAGO terminals of each aPower X can only be connected using 10AWG power wire.

Re-install the aPower X cover



Install aPower X grilles

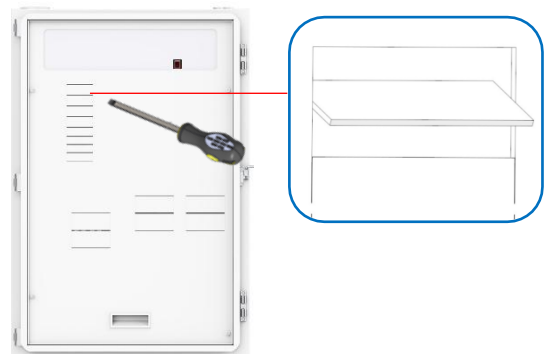


aGate X Panel re-installation

① Two installers will be needed to re-install the aGate X door.



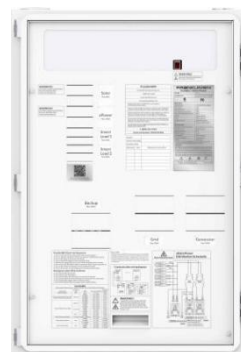
② Remove the knockouts.



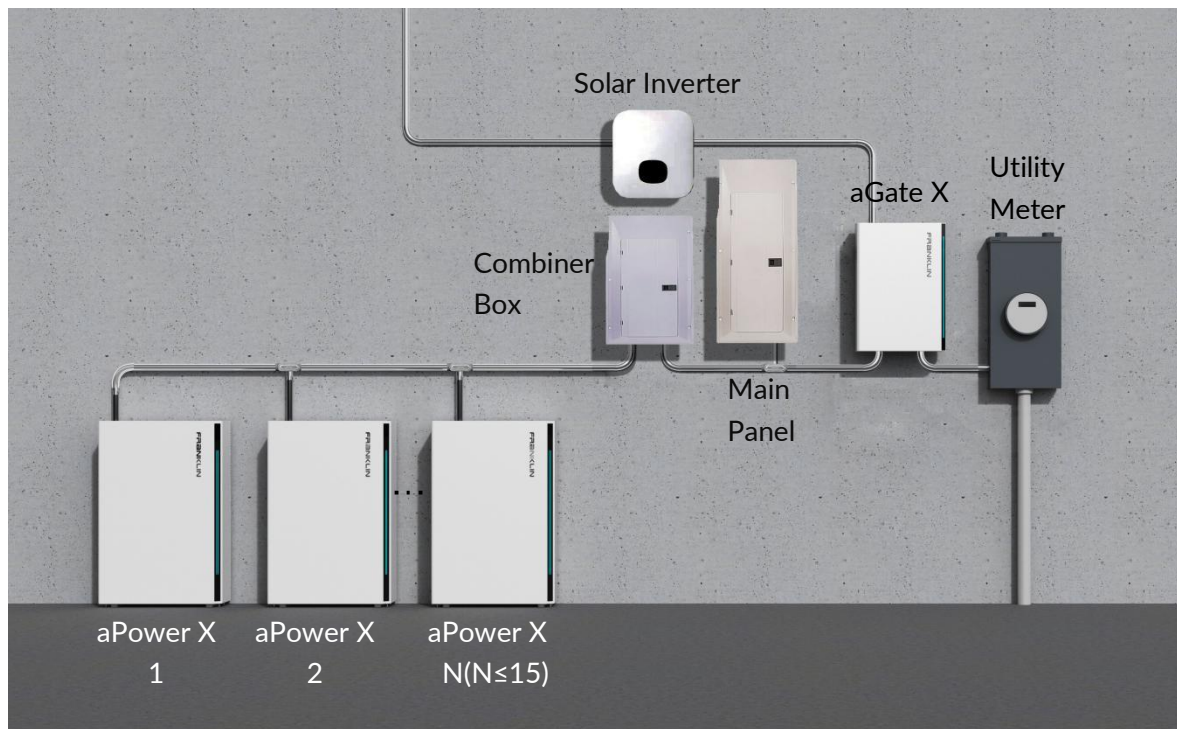
③ Install the inner panel.



④ Labels



Conduit Diagram

**DANGER:**

Avoid drilling holes in the water pipes and cables buried in the wall.

WARNING:

- Cover the aPower X top heat dissipation hole to protect from gravel dust during drilling.
- To avoid damage to equipment, completely shield all aGate X interior electrical boards and components before you drill or punch holes, to avoid debris falling into the aGate X. Clean and remove all debris before installing any components or wiring into the aGate X.

NOTE:

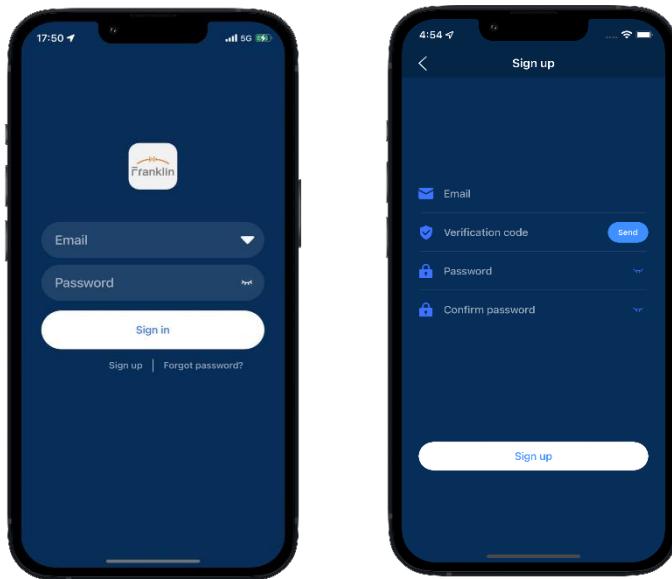
Install the communications cable and the power wires in the conduit to avoid accidental damage and communications failure. If the communications cable shares the same conduit as the power wires, please use Type 600V TC insulated network cables (with metal connectors).

FHP System Activation with Smartphone App

Step 1: Search for FranklinWH and download the app.



Step 2: Homeowners sign up with assistance from installation service providers.



NOTE: The images provided in this document are for demonstration purposes only. Depending on product version, details may appear slightly different.

Step 3: Log in to the Installer Account.

- a. Installer signs into their account to set the FHP parameters.
- b. Bind homeowner email account to the FHP.

Step 4: Log into the Homeowner Account.

The main page of the FranklinWH App displays the real-time data of the FHP system under the **Now** module, where you can view the running status of various energy devices in your home.

