FranklinWH Generator Module Installation Guide

aGate X, SKU: AGT-R1V2-US; AGT-R1V3-US
Generator Module, SKU: ACCY-GENV2-US

Jun 19, 2025

Please visit *FranklinWH Support* for the latest FranklinWH documents.

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

This document applies only to the following products: aGate X and the FranklinWH Generator Module.

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 waste. Please refer to your local laws and regulations regarding disposal.

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Overview

The FranklinWH system provides integration for third party standby generators through the built-in Generator Module, which is optional and can be easily installed without any external components. When the utility grid and solar are not available, during a prolonged outage or at night, the aPower battery charge may be depleted. In such situations, a generator may serve as a backup power source for the household loads and to recharge the aPower battery. The addition of a generator to the FranklinWH can provide uninterrupted power to homes during prolonged outages.

Key features of the FranklinWH generator integration:

- Compatible with most standby generator models.
- The generator can both power home loads and charge aPower batteries.
- The auto-exercise function can maintain good generator performance.
- Customize generator operation based on homeowner preferences.

Auto Mode

State of Charge (SOC) Control: The generator will be automatically start when the FranklinWH system is working in off-grid mode and the battery SOC falls below the set level (20% default, adjustable from 10 to 80%). The system will activate the generator to power the home, with surplus power charging the aPower X batteries.

When grid power resumes, morning comes and the solar array returns to producing energy, or the FranklinWH battery level reaches the upper SOC (80% default, adjustable 20-100%), the generator will be automatically shut off and other sources will power the home loads.

Charging Schedule: Based on their own habits, homeowners may set up a charging schedule through the FranklinWH App for the time periods when power supply from the grid is interrupted. The settings allow up to three non-overlapping time periods in a single calendar day. When the generator is activated to power the loads, it also charges the batteries. When the charging periods ends, the generator is shut off.

Manual Mode

When the power supply from the grid is interrupted, users may manually operate the generator through the app. For example, when a power outage occurs, the user may start the generator when leaving the home, to charge the FranklinWH system in advance, and may shut off the generator via the app before they return home, so that the system will take over as the power source. This helps to manage the noise produced by the generator, so that customers may enjoy a quieter home environment.

Supported generator start-up types:

- Voltage sensing
- ATS
- Dry Contact

NOTE

The FranklinWH does not support 3-phase generators or 120 V single-phase generators. Only 240 V split-phase generators with a 4-wire connection (L1, L2, neutral and ground) are supported.

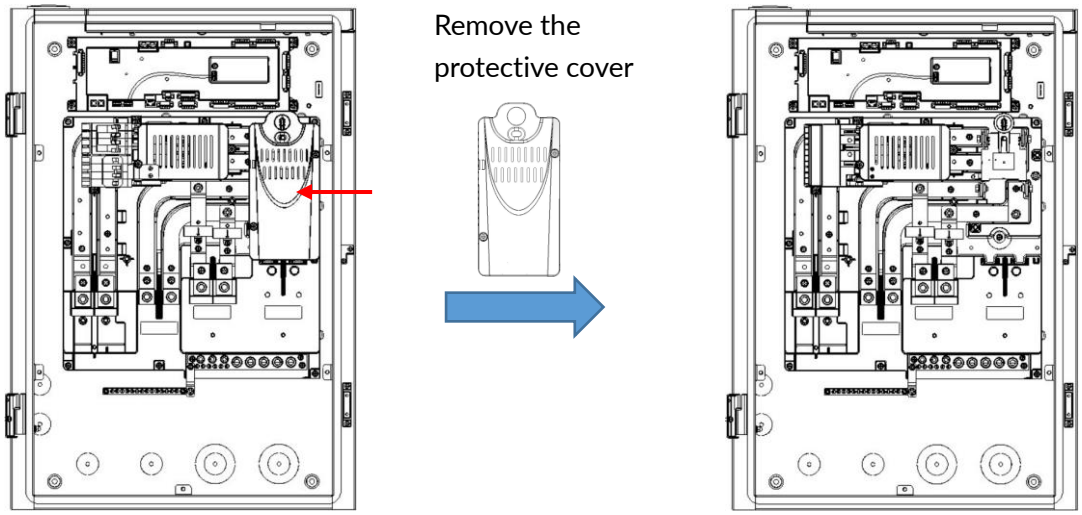
Preparation

The Generator Module does not come with breakers, or the wiring and conduit necessary to connect the generator to the aGate. Before heading to the installation site, evaluate the installation needs and bring all necessary components.

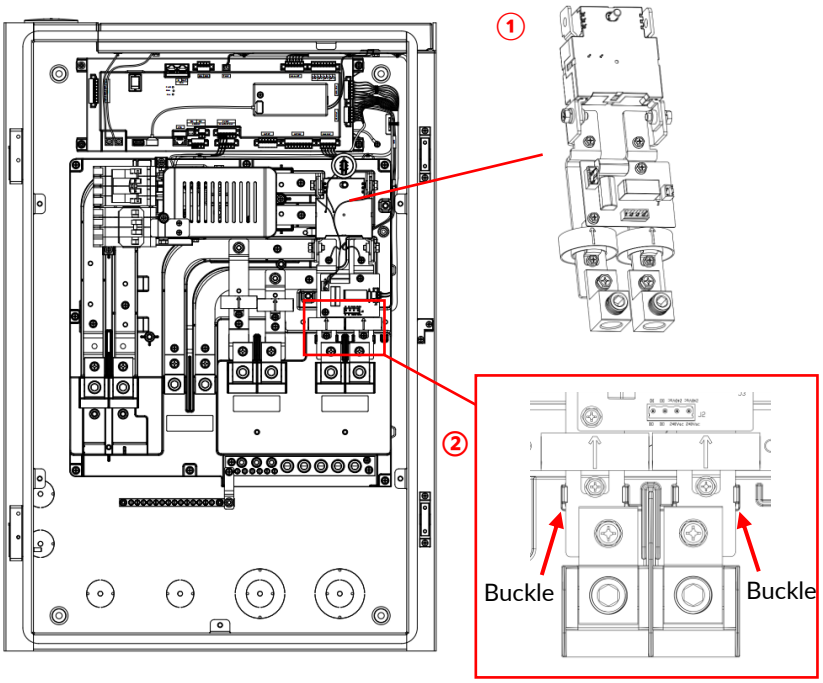
Generator Module Installation

Before installation, make sure all breakers in the aGate and all switches connected to the aGate are disconnected. Use a multimeter to check the voltages at both input and output terminals of aGate are zero (0).

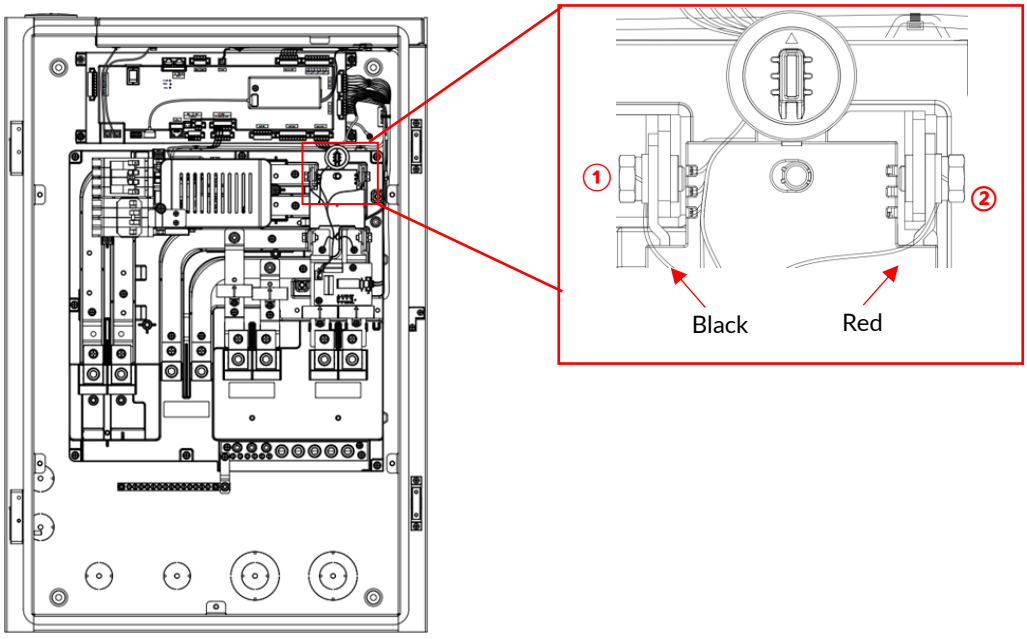
1. Use a Phillips head screwdriver to loosen the two M5 captive screws on the protective cover. Remove the protective cover and keep it in good condition.



2. Place the Generator Module in the position as shown in the figure below and check that all mounting holes are properly aligned. Ensure that the generator module copper plate is properly seated in the buckle and that the cable is not pinched.



3. Connect the black wire L1 of the W008 cable to position 1, the red wire L2 to position 2, and use a 10 mm ratchet wrench to tighten the two M6x12 screws at positions 1 and 2 to the recommended torque.

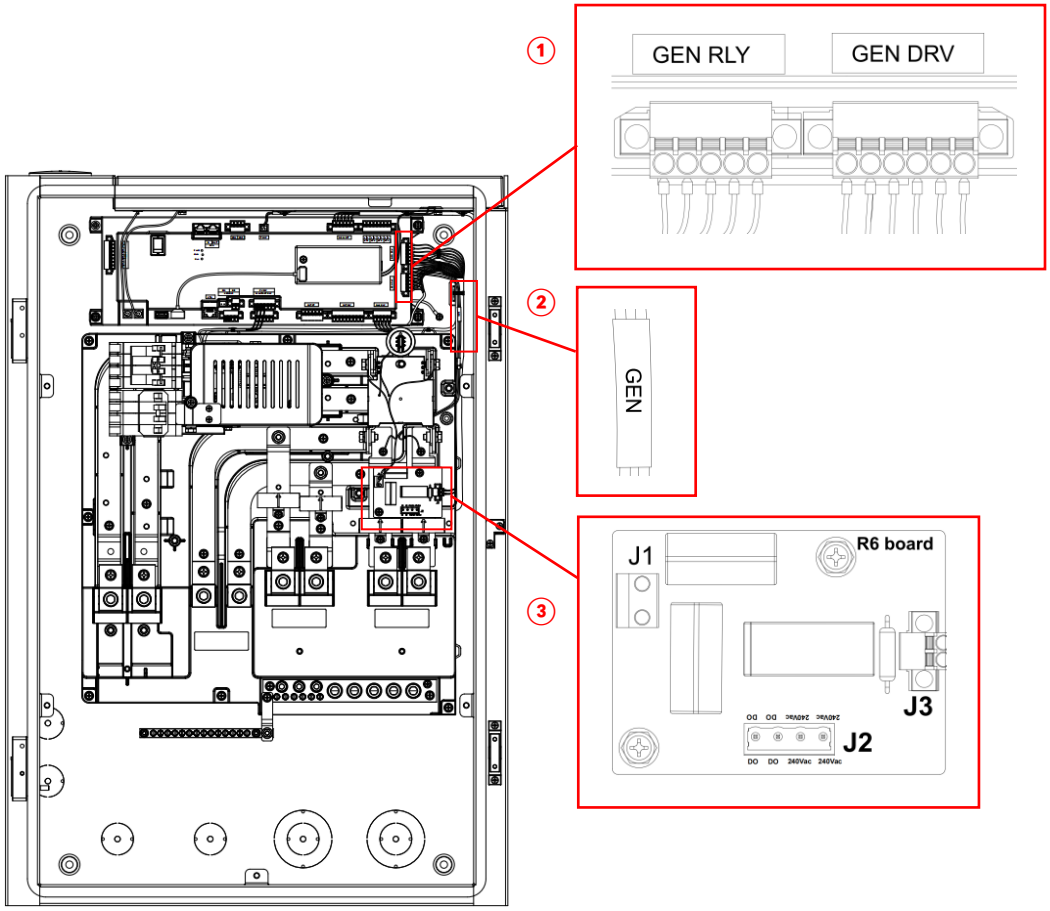


4. Connect the wires as shown in the figure below.

Position 1: Connect the GEN RLY cable to the GEN RLY connector on the EMS module. Connect the GEN DRV cable to the GEN DRV connector. Remove the adhesive film on the cable holder and stick the cable holder onto the inner wall of the aGate.

Position 2: Plug the GEN cable from the generator module to the corresponding reserved GEN cable on the right side of the EMS.

Position 3: Attach the R6-J1 cable to the J1 connector and the R6-J3 cable to the J3 connector on the R6 board.

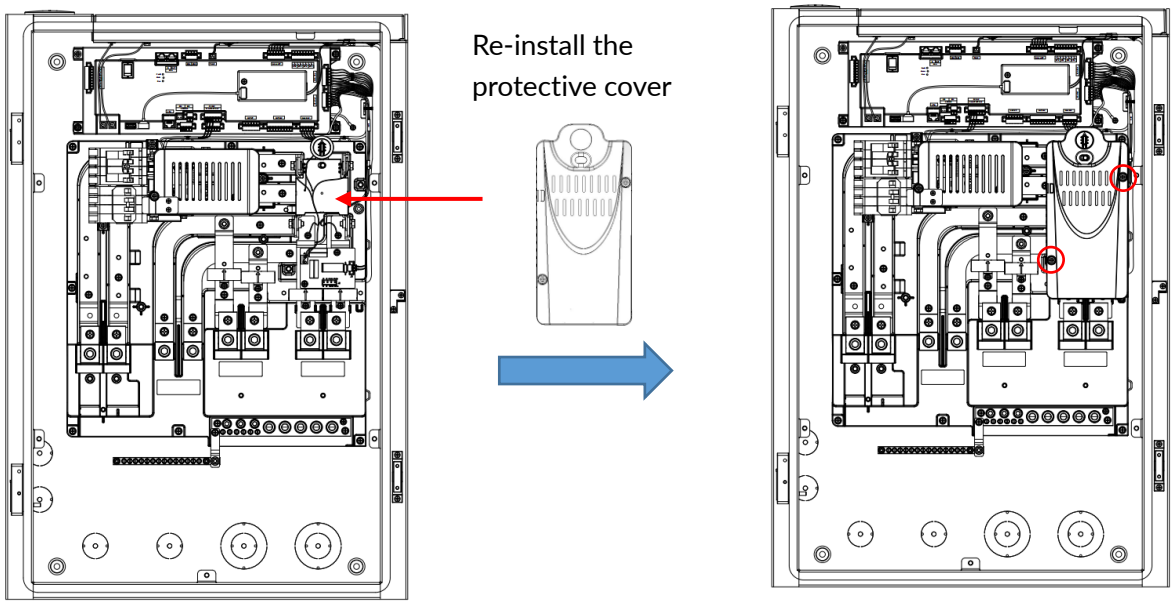


NOTE

- The label can be found on the cable.

- There is an adhesive cable holder for the GEN DRV cable.

5. Re-install the protective cover and fasten the two M5 captive screws using a Phillips head screwdriver.

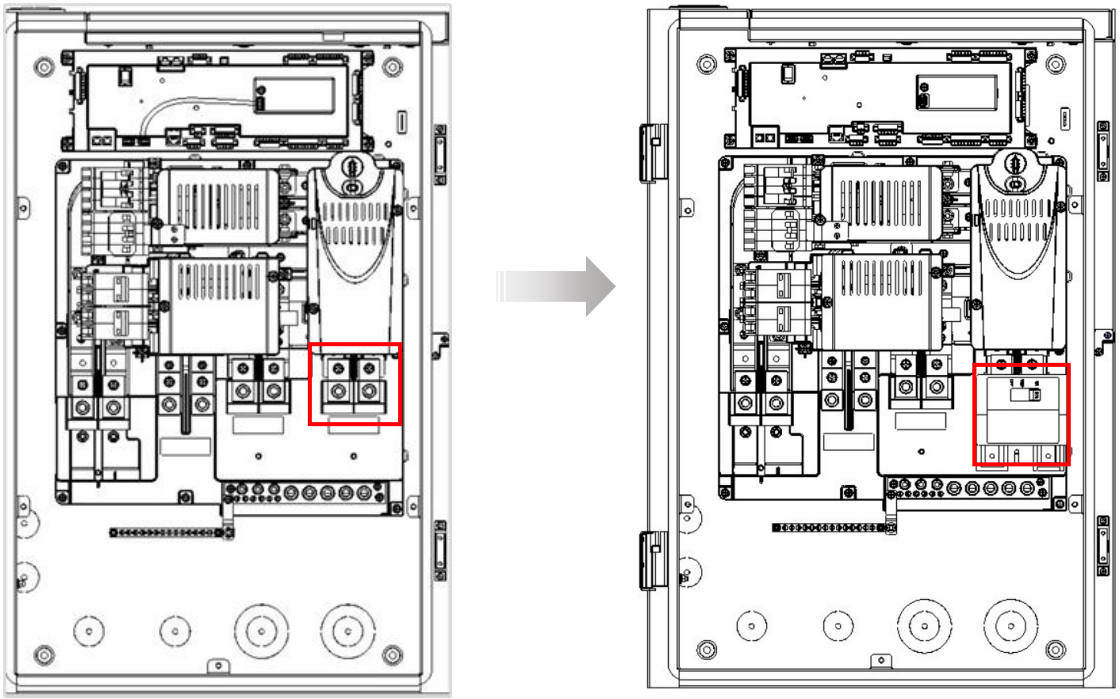


Generator Breaker Installation (if needed)

Install a generator breaker according to local laws, regulations, standards, and the National Electric Codes (NEC), ANSI/NFPA 70 or Canadian Standards Association CSA C22.1. The generator breaker is not included and must be ordered separately. Refer to Appendix 1 for compatible breakers.

Before installing a generator breaker, remove the connected lugs. When a generator breaker is not installed, the conductors can be directly connected to these lugs. Follow the instructions below to remove the lugs and install a generator breaker:

1. Using a Phillips head screwdriver, remove the two M6 x 16 combination bolts holding the lugs and save them for later use. Then remove the lugs.
2. Use the two M6 x 16 combination bolts to attach the breaker. Then use the M4 x 10 screw to secure the breaker. Tighten the M4 screw to 1.03 lbf·ft (1.4 Nm) and the M6 screw to 4.42 lbf·ft (6.0 Nm) using a Phillips head torque screwdriver.
3. Attach the provided **L2** **Generator L1** labels on the surface of generator breaker.



Connect a Standby Generator to the aGate

NOTE

For Generac generators:

- Always connect with your local Generac dealer.
- Unless it is removed by a certified Generac dealer, the existing Generac ATS has to be left in place as part of the integration.
- When you work with the local Generac dealer, the best implementation of generator controls is a low voltage, two-wire start. That conversion can be had with them.

Follow the procedures below to connect a standby generator to the aGate. Refer to Appendix 2 for wiring requirements.

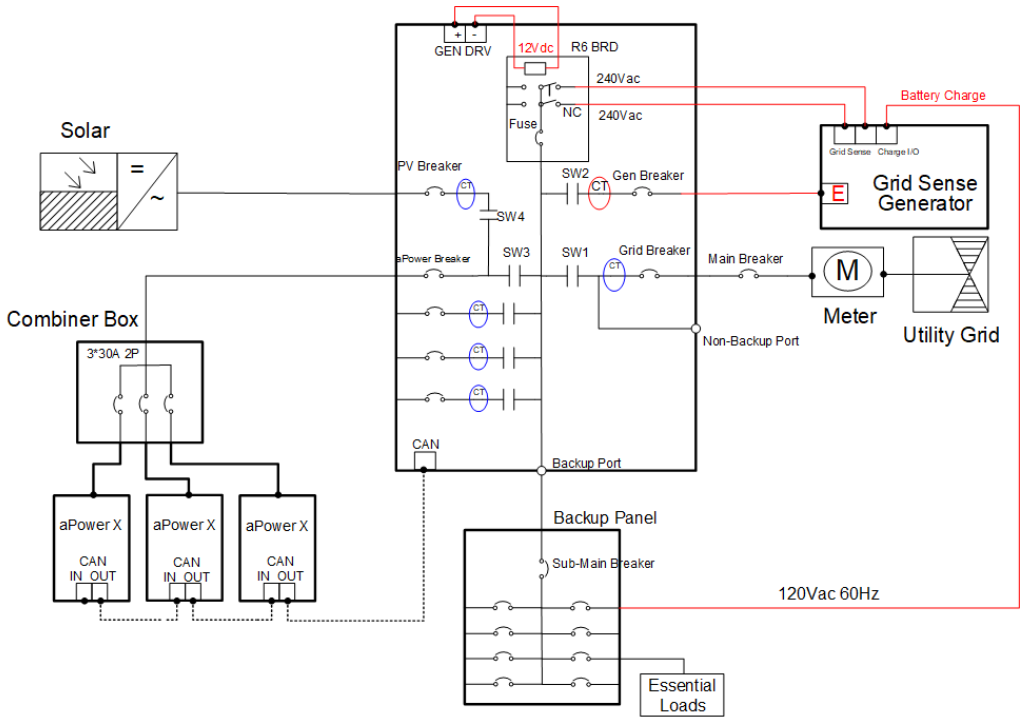
WARNING

The 240 Vac interface is used to connect Voltage Sensing and ATS-type generators, while the DO interface is suitable for dry contact generators. Connecting to the wrong interface may result in damage to the generator.

Voltage sensing generator connection

The system connects the generator's voltage sensing interface to monitor voltage levels and automatically start and stop the generator as needed. Additionally, a charging interface ensures the generator's battery remains charged for optimal operation.

The following wiring diagram is for reference only. Refer to the generator manufacturer's instructions for specific wiring requirements.



NOTE

Due to differences in various generator types, the following wiring diagram is for reference only. Refer to the specific generator instructions for actual wiring requirements.

1) Connect the generator power output wires (E1, E2, NEU, GND) to the generator input terminals on aGate (L1, L2, Neutral & GND).
2) Connect the two 240 Vac pins on the R3 board to the voltage sensing port on the generator using appropriate cables, as shown in the diagram below. Please select cables of 18 AWG - 12 AWG gauge size according to local regulations.

3) Make sure to connect the battery charge terminal (T1) in the generator to the wire from a branch circuit of the Backup Panel.

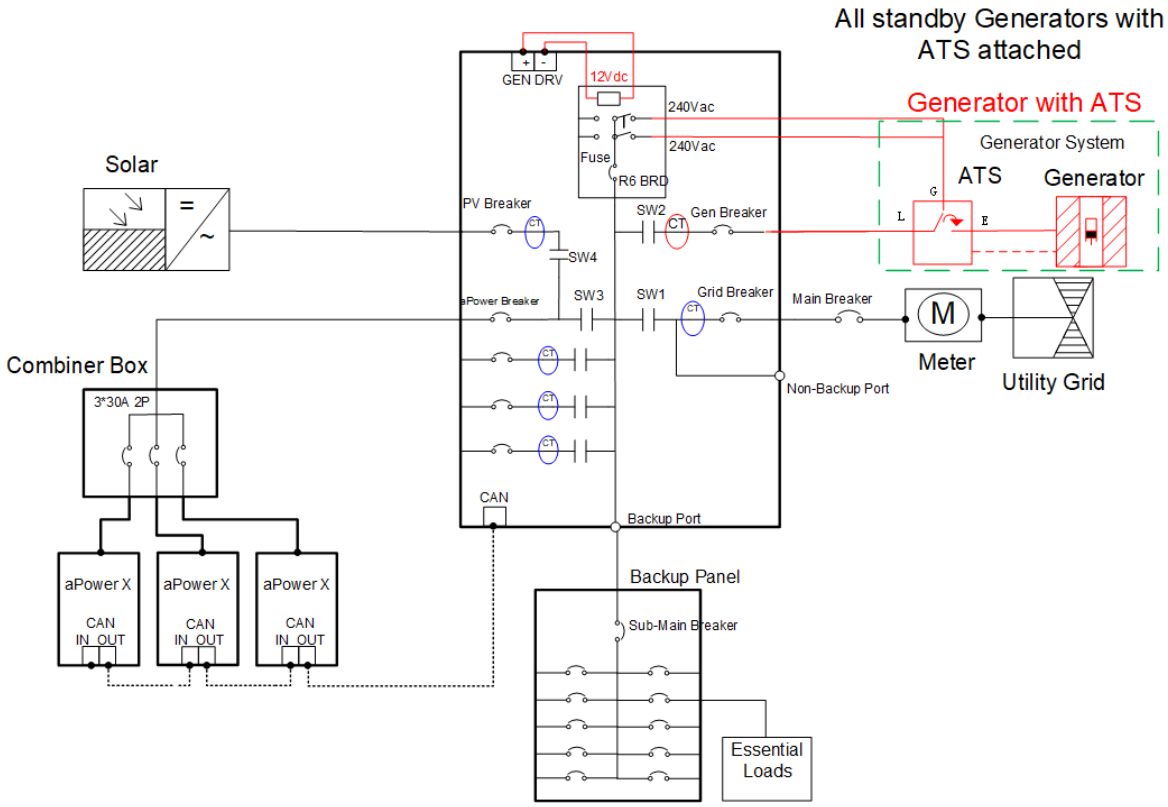
NOTE

Secure connection must be kept between the battery charge terminal and the Backup Panel branch terminal, whether the generator is on or off.

ATS generator connection

The FranklinWH system can automatically control the generator using the backup power bus's AC voltage, allowing for automatic switching between grid power and generator supply. This seamless switching ensures uninterrupted power supply.

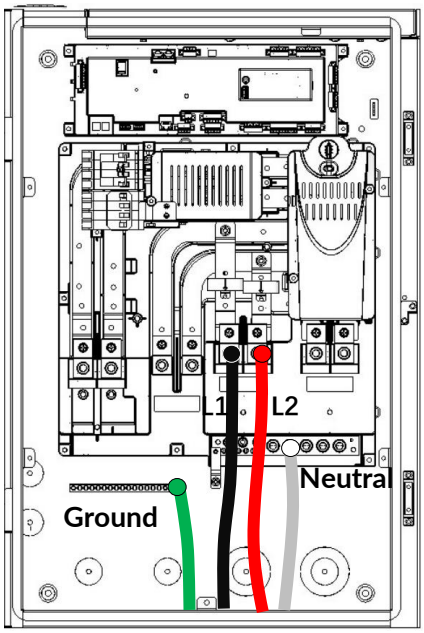
The following wiring diagram is for reference only. Refer to the generator manufacturer's instructions for specific wiring requirements.



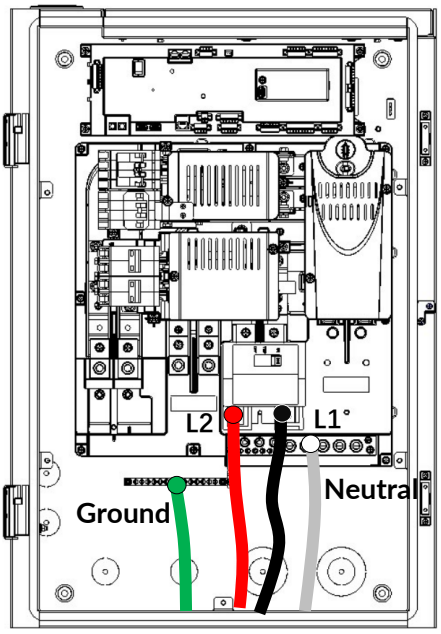
1) Remove the grid input cable from the generator system.

2) Connect the grid input cables to the grid terminals (L1, L2, Neutral & GND) in aGate.

Without breaker



With breaker



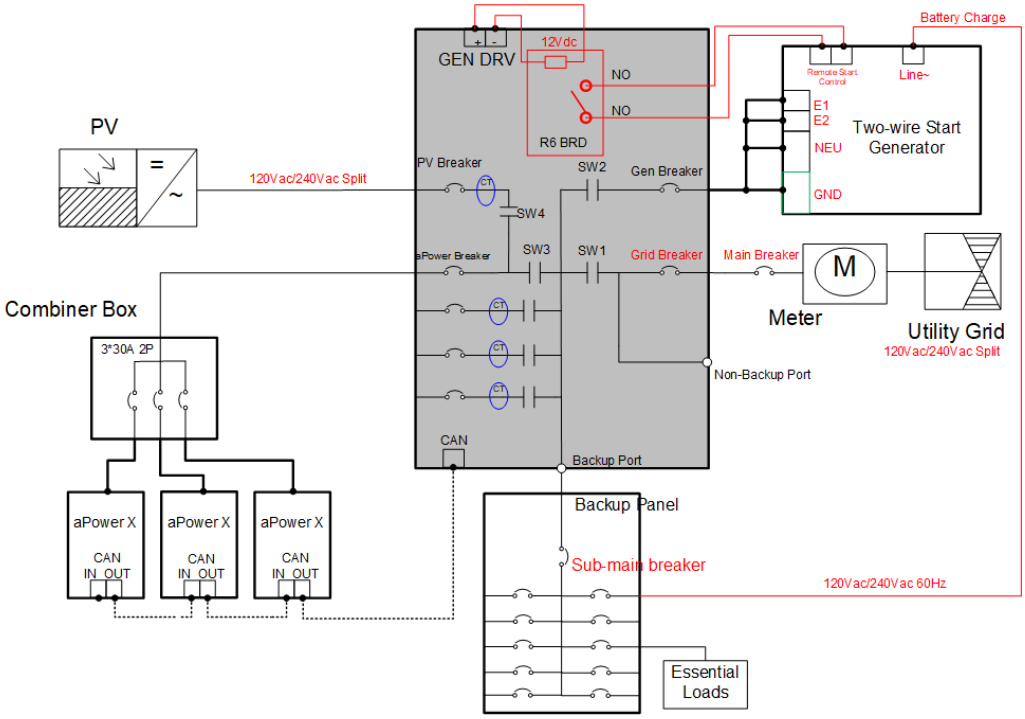
3) Connect the output terminals of the generator system to the generator input terminals on the aGate.

4) Connect the two 240 Vac pins on the R3 board to the main power input port of the ATS (Automatic Transfer Switch), as illustrated in the diagram below. Please select cables with a gauge size of 18 AWG – 12 AWG according to local regulations.

Dry Contact generator connection

The system uses dry contact signals to connect two-wire generators, allowing for automatic control of the generator. The system also includes a charging interface to prevent the battery from being depleted.

The following wiring diagram is for reference only. Refer to the generator manufacturer's instructions for specific wiring requirements.



DO/DO ports on the Generator Module

Utility voltage ports on the Generator Module

NOTE

Due to differences in various generator types, the wiring diagram is for reference only. Refer to the specific generator instructions for actual wiring requirements.

1) Connect the generator power output wires (E1, E2, NEU, GND) to the aGate generator input terminals (L1, L2, Neutral, GND).

2) Connect the two DO pins on the R3 board to the two-wire starting interface on the generator, as shown in the diagram below. Please select cables with a gauge size of 18 AWG – 12 AWG according to local regulations.

3) Connect the Battery Charge terminal in the generator to the wire from a branch circuit of Backup Panel.

NOTE

- The connection must be kept between the Battery Charge terminal and the Backup Panel branch terminal, whether the generator is on or off.
- Generator output may be shared across multiple aGates. In this case, 2-wire start is required to be used.
- The best practice is to have the local generator dealer prepare the generator for a 2-wire start before the FranklinWH System connection date.
- Portable generators with 240 V output may also be connected to the Generator Module in the aGate. Follow all guidelines in the portable generator's documentation to prevent damage or loss of life. It is important to keep the home loads to an absolute minimum when using a portable generator. Proper communication with the homeowner is essential to ensure realistic expectations.

Recommended Generator Sizing per FranklinWH aPower 2

When selecting the appropriate generator size for a power system, it's essential to ensure that the generator operates efficiently without overloading. The optimal running capacity for different generators varies, typically around 50% of its nameplate rating. Operating within this range helps to minimize Total Harmonic Distortion (THD) and prevent surging, which can negatively affect both the generator and connected appliances.

The table below outlines the recommended generator sizes for 1, 2, and 3-unit configurations of the aPower 2 battery, taking into account typical household needs and operational efficiency.

Configuration	Generator Power (kW)	Suitable for Household Size
Single Unit	12 kW	Small to medium household
Two Units	23 kW	Medium to large household
Three Units	≥23 kW	Large household

NOTE

When integrating external standby generator to augment the backup circuit, all connected PV sources must be connected via relay curtailment device input (aGate PV input, aPbox, PowerLink).

Configure the Generator using the FranklinWH App

For more information, refer to ***FranklinWH Commissioning Guide***.

Appendix 1 Recommended Generator Breakers

S/N	Model	Current	Description
1	CSR2100	100 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 100 A/240 V
2	CSR2125N	125 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 125 A/240 V
3	CSR2150N	150 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 150 A/240 V
4	CSR2175N	175 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 175 A/240 V
5	CSR2200N	200 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 200 A/240 V
6	BW2100	100 A	Eaton#Circuit Breaker; 2-Pole, 10 kAIC, 100 A/240 V
7	BW2125	125 A	Eaton#Circuit Breaker; 2-Pole, 10 kAIC, 125 A/240 V
8	BW2150	150 A	Eaton#Circuit Breaker; 2-Pole, 10 kAIC, 150 A/240 V
9	BW2175	175 A	Eaton#Circuit Breaker; 2-Pole, 10 kAIC, 175 A/240 V
10	BW2200	200 A	Eaton#Circuit Breaker; 2-Pole, 10 kAIC, 200 A/240 V
11	BWH2100N	100 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 100 A/240 V
12	BWH2125N	125 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 125 A/240 V
13	BWH2150N	150 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 150 A/240 V
14	BWH2175N	175 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 175 A/240 V
15	BWH2200N	200 A	Eaton#Circuit Breaker; 2-Pole, 25 kAIC, 200 A/240 V

NOTE: *The generator breaker may be installed outside the aGate depending on the site condition.*

Appendix 2 Wiring

Terminal Name	Wire Gauge	Tool	Strip Length	Torque
Single-lug terminal	4 AWG–250 MCM CU/AL	8 mm hex wrench 5/8-18 UNF hex screw	1 in.	3/0 AWG–250 MCM 275LB-IN 4 AWG–2/0 AWG 110LB-IN
Neutral bar terminal lug	4 AWG–250 MCM CU/AL	8 mm hex wrench 5/8-18 UNF hex screw	1 in.	3/0 AWG–250 MCM 275 LB-IN 4 AWG–2/0 AWG 110 LB-IN
	14 AWG–2/0 AWG CU/AL	5 mm hex wrench 7/16-20 UNF hex screw	1 in.	3 AWG–2/0 AWG 110 LB-IN 14 AWG–4 AWG 35 LB-IN
	14 AWG–4 AWG CU/AL	Straight screwdriver 1/4-28 UNF	0.6 in.	14 AWG–4 AWG 26 LB-IN
Ground bar terminal lug	14 AWG–2/0 AWG CU/AL	5 mm hex wrench 7/16-20 UNF hex screw	0.8 in.	3 AWG–2/0 AWG 110 LB-IN 14 AWG–4 AWG 35 LB-IN
	14 AWG–4 AWG CU/AL	Straight screwdriver 1/4-28 UNF	0.4 in./0.8 in.	14 AWG–4 AWG 26 LB-IN