Powerwall++ Owner's Manual

For the latest Powerwall++ documents in all supported languages, including the Warranty, visit *www.tesla.com/support/powerwall*.
To secure the full 10-year product warranty, Powerwall++ must be registered by completing the commissioning process and sending system information to Tesla.

WARNING: Read this entire document before using Powerwall++. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage Powerwall++, potentially rendering it inoperable.

Product Specifications
This manual applies to the following products:

- Powerwall++ (1707000-xx-y)

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Tesla, we reserve the right to make product modifications at any time.
The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

Errors or Omissions
To communicate any inaccuracies or omissions in this manual, please contact Tesla.

©2022 TESLA, INC. All rights reserved.
All information in this document is subject to copyright and other intellectual property rights of Tesla, Inc. and its licensors. This material may not be modified, reproduced or copied, in whole or in part, without the prior written permission of Tesla, Inc. and its licensors. Additional information is available upon request. The following are trademarks or registered trademarks of Tesla, Inc. in the United States and other countries:

	TESLA	Tesla	Tesla Motors	Powerwall

All other trademarks contained in this document are the property of their respective owners and their use herein does not imply sponsorship or endorsement of their products or services. The unauthorized use of any trademark displayed in this document or on the product is strictly prohibited.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

Powerwall++ installation and service require knowledge of high voltage electricity and should only be performed by Tesla Certified Installers. Tesla assumes no liability for injury or property damage due to repairs attempted by unqualified individuals or a failure to properly follow these instructions. These warnings and cautions must be followed when using Powerwall++.

Symbols in This Document

This manual uses the following symbols to highlight important information:

WARNING: indicates a hazardous situation which, if not avoided, could result in injury or death.

CAUTION: indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

NOTE: indicates an important step or tip that leads to best results, but is not safety or damage related.

General Information

WARNING: Read this entire document before installing or using Powerwall++. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage Powerwall++, potentially rendering it inoperable.

WARNING: Electric shock hazard. The DC conductors of this PV system are normally ungrounded but will become intermittently grounded without indication when the inverter measures the PV array isolation. Energy stored in capacitor. Do not remove cover until 5 minutes after disconnecting the equipment. Power fed from more than one source. Disconnect all sources of supply before servicing.

WARNING: A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.

WARNING: This product can expose you to chemicals including cobalt and lithium compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, visit www.P65Warnings.ca.gov. You cannot be exposed to these chemicals without opening the external casing. Only members of the Tesla Service team and other Tesla-certified technicians should open the external casing.

WARNING: Use Powerwall++ only as directed.

WARNING: Do not use Powerwall++ if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate.

WARNING: Do not attempt to open, disassemble, repair, tamper with, or modify Powerwall++. Powerwall++ and its components are not user serviceable. Batteries in Powerwall++ are not replaceable. Contact the Tesla Certified Installer who installed the system for any repairs.

WARNING: To protect Powerwall++ and its components from damage when transporting, handle with care. Do not impact, pull, drag, or step on Powerwall++. Do not subject Powerwall++ to any strong force. To help prevent damage, leave Powerwall++ in its shipping packaging until it is ready to be installed.

WARNING: Do not insert foreign objects into any part of Powerwall++.

WARNING: Do not expose Powerwall++ or its components to direct flame.

WARNING: Do not install Powerwall++ near heating equipment.

WARNING: Do not immerse Powerwall++ or its components in water or other fluids.

CAUTION: Risk of electric shock. Do not remove cover, there are no user serviceable parts inside. Refer servicing to qualified personnel.

CAUTION: Both AC and DC voltage sources are terminated inside this equipment. Each circuit must be individually disconnected before servicing.

CAUTION: When the PV array is exposed to light, it supplies a DC voltage to this equipment.

CAUTION: Do not use cleaning solvents to clean Powerwall++, or expose Powerwall++ to flammable or harsh chemicals or vapors.

CAUTION: Do not place Powerwall++ in a storage condition for more than one (1) month, or permit the electrical feed on the Powerwall++ to be severed for more than one (1) month. Please reach out to your installer for more information if needed.

CAUTION: Do not paint any part of Powerwall++, including any internal or external components such as the exterior shell or casing.

Environmental Conditions

WARNING: Operating or storing Powerwall++ in temperatures outside its specified range might cause damage to Powerwall.

WARNING: Do not expose Powerwall++ to ambient temperatures above 60°C (140°F) or below -30°C (-22°F).

CAUTION: Ensure that no water sources are above or near Powerwall++, including downspouts, sprinklers, or faucets.

CAUTION: Ensure that snow does not accumulate around Powerwall++.

FCC

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.

15.21 - Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

15.105 (b) - 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.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Information (MPE)

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

ISED Canada Compliance Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

POWERWALL++ WARRANTY

Tesla Powerwall++ comes with a warranty whose term depends on the connection of Powerwall++ to the Internet.

To secure the full 10-year warranty for Powerwall++, it must be reliably connected to the Internet to allow remote firmware upgrades from Tesla. If an Internet connection is not established or is interrupted for an extended period, and Tesla is unable to contact you, the warranty may be limited to 4 years.

For more information, refer to the Tesla Powerwall++ Warranty for your region at *tesla.com/support/energy/powerwall/documents*.

CARE AND MAINTENANCE

Environmental Requirements

Powerwall++ is capable of charging and discharging within the operating temperature range specified below. At the extremes of the temperature range, Powerwall++ may limit charge or discharge power to improve battery lifespan.

For best performance, the average ambient temperature over the system's lifetime should fall within the optimum temperature range specified below.

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Optimum Temperature	0°C to 30°C (32°F to 86°F)

Care and Cleaning

If it is installed outside, keep the front of Powerwall++ clear of leaves and other debris to maintain optimal airflow.

CAUTION: Do not lean on, stack anything on top of, or hang anything from Powerwall++ or from wires or conduit leading to Powerwall++.

CAUTION: To clean Powerwall++, use a soft, lint-free cloth. If needed, the cloth can be dampened with mild soap and water only.

CAUTION: Do not use cleaning solvents to clean Powerwall++ or expose Powerwall++ to flammable or harsh chemicals or vapors.

Maintenance

Powerwall++ and the Gateway do not require pre-scheduled preventative maintenance. The only maintenance required by an owner is to keep the Powerwall++ unit free and clear of debris, especially around the air intake and exhaust.

ABOUT POWERWALL++

System Design

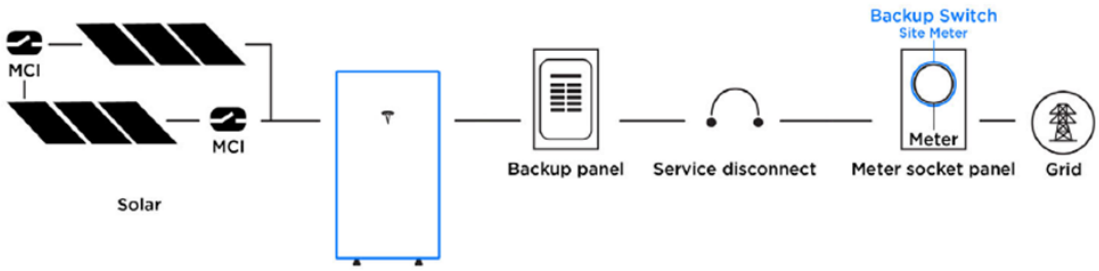
Powerwall++ is a fully integrated AC battery and PV inverter system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, load shifting, or off-grid use. The Tesla Energy Gateway controls the operation of the system and allows remote monitoring of energy usage.

Excess solar energy can be stored and used at night to reduce or eliminate dependence on utility power.

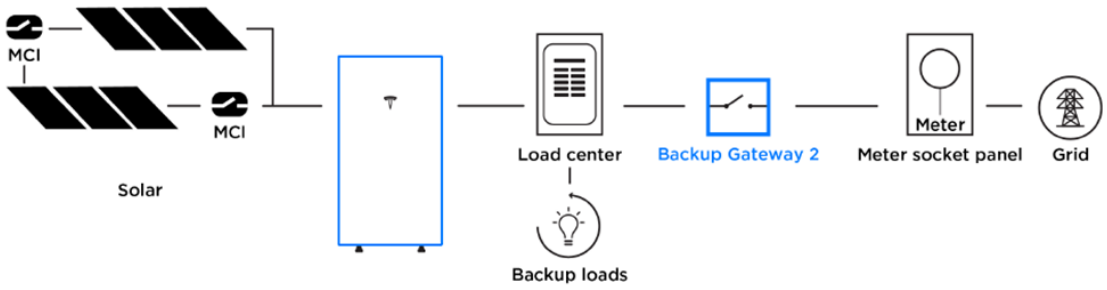
Whole Home Backup System

A Powerwall++ system for whole home backup is designed to store energy from the grid or solar, and power the entire home during a grid outage.

Whole Home Backup with Backup Switch

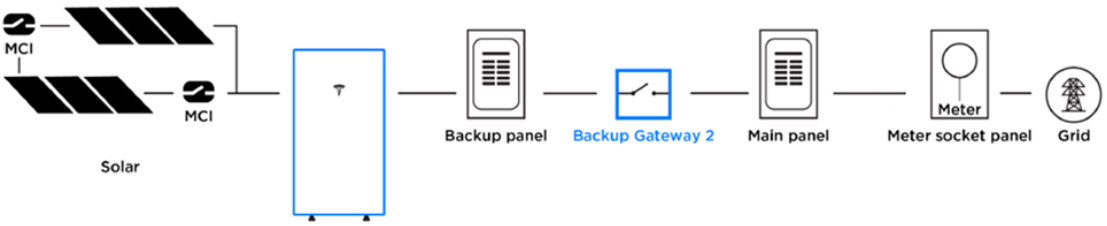


Whole Home Backup with Backup Gateway 2



Partial Home Backup System

A Powerwall++ system for partial home backup is designed to store energy from the grid or solar, and can power some home loads during a grid outage. These loads are selected during the system design phase, and the installer configures the system at installation to exclude all other loads from backup.



System Components

Powerwall++

Component	Description	Tesla Part Numbers
	**Powerwall++** is the rechargeable battery and solar inverter that stores energy for your home. Every system contains at least one Powerwall++, with additional Powerwall++ installed, depending on your home's energy consumption. Powerwall++ is installed with one of the following Tesla devices.	1707000-xx-y

Tesla Energy Equipment

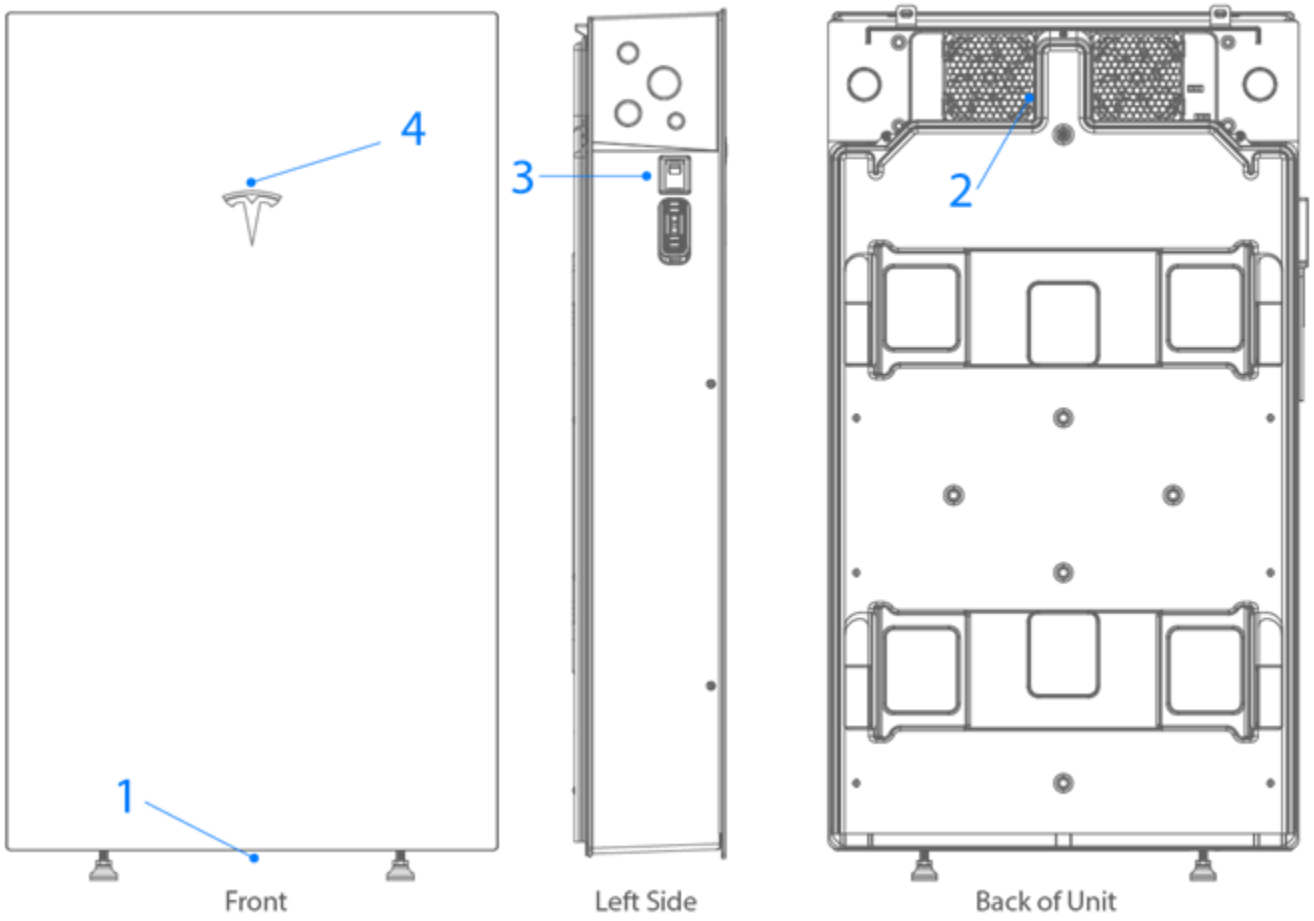
Component	Description	Tesla Part Numbers
	The **Tesla Backup Gateway 2** is installed in partial and whole home backup systems. The Backup Gateway 2 controls the operation of the system, allows remote monitoring of energy usage, and manages the transition to and from backup operation.	1232100-xx-y
	The **Tesla Backup Switch** is installed in whole home backup systems. When installed with the Tesla Backup Gateway 2, it detects grid outages and manages the transition to and from backup operation while the Backup Gateway controls the operation of the system.	1624171-xx-y

Additional Equipment

Component	Description
	The **Remote System Shutdown Switch**, when installed, is a means of turning off Powerwall++ to disable charging and discharging. Push in on the switch to disable Powerwall++ and initiate rapid shutdown of solar production. To turn the system back on, twist the red handle clockwise, allowing it to return to the ON position.

Powerwall++ Overview

Powerwall++ includes the following components and features:



Component/Feature	Name
1	Air Intake
2	Air Exhaust
3	On/Off Switch
4	LED Indicator

SYSTEM OPERATION

The Gateway provides control and monitoring capability through the Tesla app. During normal operation, Powerwall++ is controlled by the Gateway, and the Powerwall++ On/Off switch should remain in the ON position. When troubleshooting Powerwall++ operation, it may be necessary to turn off Powerwall++ or refer to its LED indicator to confirm that it is operating properly.

WARNING: Do not operate Powerwall++ unless all covers are in place.

WARNING: Do not disconnect anything from or add anything to Powerwall++.

CAUTION: Do not try to communicate with Powerwall++ using third party tools or diagnostics between Powerwall++ and the Gateway.

Monitoring Your System

Using the Tesla app, you can monitor the system operation from your mobile device, including the following:

- Real-time power usage
- Energy consumption history
- Relative amounts of energy used from solar, grid, and Powerwall storage

To download the latest version of the Tesla app, visit *tesla.com/support/tesla-app*.

Troubleshooting

If the system is not working correctly, perform the following steps.

CAUTION: Powerwall and the Gateway are not user-serviceable and must be repaired by a Tesla Certified Installer.

WARNING: Do not open the deadfront cover inside the Gateway. Exposed wiring can present a risk of electrical shock.

Check the LED on the front of Powerwall++ to determine its status:

LED State	Indication
On (solid)	System idle, no faults
On (fading)	System enabled and charging or discharging
On (flashing)	Fault present
Off	System not enabled or switched off

If it is not possible to communicate with the Gateway through the Tesla app, ensure that the home Internet connection is working.

If the Gateway and Powerwall++ are both unresponsive, it may be necessary to turn off or power cycle the system. Note that power cycling the system must be done in the proper sequence as defined below.

WARNING: On Powerwall++ systems with interconnected solar, always turn off the solar inverter or disconnect the solar source before turning off the Powerwall++ unit.

1. Turn off Powerwall++ by setting its On/Off switch to the OFF position.
2. Turn off the AC breaker to Powerwall++.
3. Turn off the AC breaker to the Gateway (for whole-home backup systems, this may be a breaker inside the Backup Gateway).
4. Wait for at least one minute.
5. Turn the AC breakers back on.
6. Turn on Powerwall++.

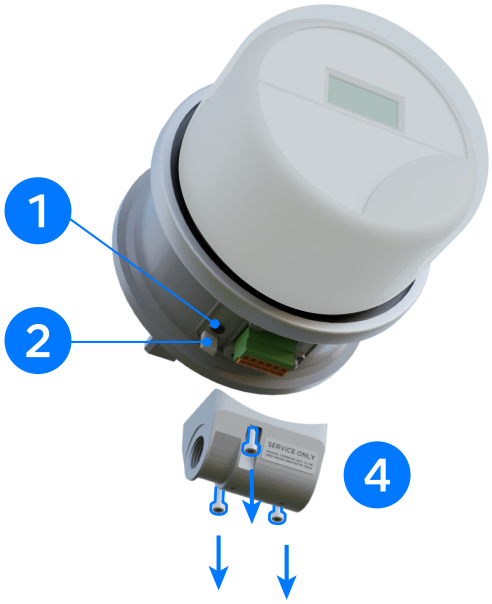
Backup Troubleshooting

- If a brownout or blackout is experienced during backup operation, reduce the loads and check that the load breakers have not opened.

  NOTE: See *https://www.tesla.com/support/energy/powerwall/own/best-practices-during-power-outages* for best practices to extend the backup duration of your system during an outage.

- If it is necessary to restart the Backup Gateway or Backup Switch, Tesla support may direct you to press the Reset button on the device.
- If it is necessary to manually reconnect to the grid, Tesla Support may direct you to operate the manual override switch on the Backup Gateway or the Backup Switch.

Backup Gateway 2



Backup Switch

Component	Name
1	Backup Gateway / Backup Switch RESET button
2	Backup Gateway / Backup Switch manual override switch
3	Backup Gateway circuit breaker (in most whole-home backup systems)
4	Backup Switch conduit hub[1]

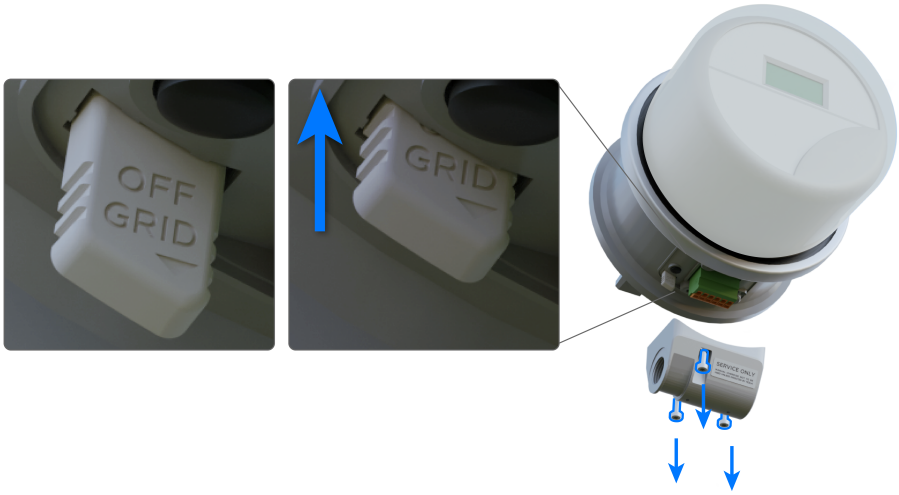
[1]The Backup Switch conduit hub must be removed to access the Backup Switch Reset button or manual override switch. To remove the conduit hub, use a Phillips PH2 screwdriver to loosen the (3) captured fasteners holding it in place, then remove the hub. Once any service actions have been completed, replace the conduit hub and tighten the (3) fasteners.

Operating the Backup Switch Manual Override

WARNING: Improper operation of the manual override switch may damage the unit, and could void the product warranty. Do not remove the conduit hub or operate the manual override switch unless directed to do so by Tesla Support, or in the event that the grid is present but you are experiencing an outage. Contact Tesla Support if you are not sure whether you should operate the manual override switch.

WARNING: Do not make any modifications or adjustments to the Utility Meter; only interact with the Backup Switch.

To manually connect the system to the grid, push the Backup Switch manual override switch in.



Backup Switch LED Status

The Backup Switch LED is located near the Reset button under the conduit hub. To view the Backup Switch LED and determine its status, remove the conduit hub as described above.

LED State	Indication
On (solid)	Power is on, communication established with Powerwall+
On (flashing)	Power is on, no communication with Powerwall+
Off	Power is off

Connect Powerwall to Wi-Fi

You can connect your Powerwall to a Wi-Fi network or change existing Wi-Fi settings through your Tesla Mobile App. Your Powerwall is supported on 2.4 or 5.0 Ghz Networks with WEP/WPA1/WPA2 personal security as well as Hidden SSIDs.

Connect Powerwall to Wi-Fi for the First Time

1. Locate the **Home Energy Gateway** menu on the Tesla Mobile App home screen.
2. Select **Connect your Powerwall to Wi-Fi**.
3. Select your preferred Wi-Fi network.
4. Enter your network password if you are prompted to do so.
5. Once you see a confirmation message on the screen, your Powerwall is officially connected to the internet.

Update Your Existing Powerwall Wi-Fi Settings

1. Locate the **Home Energy Gateway** menu on the Tesla Mobile App home screen.
2. Select **Customize**.
3. Select **Configure Wi-Fi**.
4. Select the Wi-Fi network you would like the Powerwall to connect to.
5. Enter your network password if you are prompted to do so.
6. Once you see a confirmation message on the screen, your Powerwall is officially connected to the internet.

NOTE: If you are unable to set up Wi-Fi from the Tesla Mobile App, please visit *https://www.tesla.com/support/energy/powerwall/own/monitoring-from-home-network* for additional instructions.

Technical Support

If you need further assistance, contact the Tesla Service team via the Contact Us page:

https://www.tesla.com/support/energy/more/additional-support/contact-us

Have the following information available when contacting Tesla:

- Owner name
- Best way for Tesla to contact you (name, phone number, email)
- Powerwall++, Gateway, and Backup Switch serial numbers (see *System Information on page 19*)
- Brief description of the issue

WHAT TO DO IN CASE OF AN EMERGENCY

In the event of any threat to health or safety, always begin with these two steps before addressing the other suggestions below:

1. Immediately contact the fire department or other relevant emergency response team.
2. Notify all people who might be affected and ensure that they can evacuate the area.

WARNING: Only perform the suggested actions below if it is safe to do so.

- Turn off any additional solar inverter(s), then turn off the AC breaker for each additional solar inverter.
- Turn off Powerwall++, then turn off the AC breaker to Powerwall++.
- Turn off any additional Powerwall(s), then turn off the AC breaker for each additional Powerwall++.
- Turn off the AC breaker to the Gateway.
- Acceptable fire extinguisher types are water, CO2, and ABC.
- Avoid type D (flammable metal) extinguishers.

In case of flooding:

- Stay out of the water if any part of the battery, Gateway, or wiring is submerged.
- Turn off any additional solar inverter(s), then turn off the AC breaker for each additional solar inverter.
- Turn off Powerwall++, then turn off the AC breaker to Powerwall++.
- Turn off any additional Powerwall(s), then turn off the AC breaker for each additional Powerwall++.
- Turn off the AC breaker to the Gateway.
- If possible, protect the system by finding and stopping the source of the water, and pumping water away.
- If any part of the unit was submerged, note the depth and duration of the flooding.
- Contact Tesla Support to determine if the unit can be safely turned back on.
- If Tesla Support has confirmed that it is safe to turn the unit back on, let the area dry completely before use.

If there is an unusual smell or smoke:

- Turn off any additional solar inverter(s), then turn off the AC breaker for each additional solar inverter.
- Turn off Powerwall++, then turn off the AC breaker to Powerwall++.
- Turn off any additional Powerwall(s), then turn off the AC breaker for each additional Powerwall++.
- Turn off the AC breaker to the Gateway.
- Ensure nothing is in contact with Powerwall++.
- Ventilate the room.

If Powerwall++ is making unusual noises:

- Turn off Powerwall++, then turn off the AC breaker to Powerwall++.
- Turn off any additional Powerwall(s), then turn off the AC breaker for each additional Powerwall++.
- Turn off the AC breaker to the Gateway.
- Ensure that nothing is in the vent of Powerwall++ or in the fan.

In all cases, once the situation is stable, contact the Tesla Certified Installer who installed the system.

For first responder information, see *tesla.com/firstresponders*.

SYSTEM INFORMATION

The serial numbers for your system can be found on their product labels.

Powerwall++ Serial Number

PLACEHOLDER FOR IMAGE OF SERIAL NUMBER LOCATION

Backup Gateway 2 Serial Number

Backup Switch Serial Number

Published December 2022

Revision A