TESLA

ENERGY

POWERWALL
INSTALLATION AND USER'S MANUAL

For the latest Powerwall documents in all supported languages, including the Warranty, go to: www.teslamotors.com/support/powerwall

To secure the full 10-year product warranty, be sure to register Powerwall online.

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.

PRODUCT SPECIFICATIONS

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 send an email to: energymanualfeedback@teslamotors.com.

ELECTRONIC DEVICE: DO NOT THROW AWAY

Proper disposal of batteries is required. Refer to your local codes for disposal requirements.

MADE IN THE USA

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SAVE THESE IMPORTANT SAFETY INSTRUCTIONS. These installation and repair instructions assume knowledge of high voltage electricity and should only be executed by Tesla Energy Certified Installers. Tesla Motors 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:	WARNING indicates a hazardous situation which, if not avoided, could result in injury or death.
⚠ Caution:	CAUTION indicates a hazardous situation which, if not avoided, could result in damage to the equipment.
Note:	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: A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.
- ⚠ Warning: Use Powerwall only with a Tesla-approved inverter.
- ⚠ 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: Before beginning the wiring portion of the installation, verify that the inverter is powered off.
- ⚠ Warning: Do not attempt to open, disassemble, repair, tamper with, or modify Powerwall. Powerwall is not user serviceable. Batteries in Powerwall are not replaceable. Contact the Tesla Energy Authorized Reseller who sold the Powerwall for any repairs.
- ⚠ Warning: Do not connect Powerwall to alternating current carrying conductors. Powerwall must be wired to either an inverter or a DC combiner panel that is then wired to an inverter. No other wiring configuration may be used.
- ⚠ Warning: Powerwall contains components, such as switches and relays, that can produce arcs or sparks.
- ⚠ 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 immerse Powerwall or its components in water or other fluids.

- Caution: Do not use cleaning solvents to clean Powerwall, or expose Powerwall to flammable or harsh chemicals or vapors.
- Caution: Do not use fluids, parts, or accessories other than those specified in this manual, including use of non-genuine Tesla parts or accessories, or parts or accessories not purchased directly from Tesla or a Tesla-certified party.
- 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, without placing Powerwall into a storage condition in accordance with Tesla's storage specifications.
- Caution: Do not paint any part of Powerwall, including any internal or external components such as the exterior shell or casing.
- Caution: Do not connect Powerwall directly to photovoltaic (PV) solar wiring.

ENVIRONMENTAL CONDITIONS

- Warning: Install Powerwall at a height that prevents damage from flooding.
- Warning: When used in an indoor location such as a garage, Powerwall must be located at least 15 cm (6 in) above the floor.
- Warning: Operating or storing Powerwall in temperatures outside its specified range might cause damage to Powerwall.
- Warning: Do not expose the 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 on top of or around Powerwall.

QUALIFIED INSTALLERS

- Warning: Powerwall installation must be carried out only by Tesla Energy Certified Installers, who have been trained in dealing with high voltage electricity.
- Warning: Powerwall is heavy and challenging to lift.

THE FUTURE OF SUSTAINABLE ENERGY

Powerwall is a lithium-ion battery system that turns solar panels into an all-day resource while offering backup power in the event of a grid outage. Powerwall enables storage of renewable energy, allowing optimized home energy control and an increasing amount of total electricity production to come from renewable sources. Reliable renewable energy improves the resiliency of the grid, reduces energy costs, and increases the impact of electric vehicle ownership.

POWER WHEN NEEDED

Powerwall enables the storage of energy from solar panels during the day, or from the grid when energy rates are low; discharges energy for backup or use at night; and automatically optimizes home energy. Powerall thereby maximizes solar consumption and reduces energy spending.

A FLEXIBLE SOLUTION

Powerwall is available in a weekly cycling version and a daily cycling version. Powerwall can be charged from solar or grid power and can provide backup power. If greater amounts of energy are needed, multiple Powerwalls can be installed together to work as a larger system.

Note: To secure the full 10-year product warranty, be sure to register Powerwall online.

ELECTRICAL SPECIFICATIONS

	Daily Version	Weekly Version
Power Discharge, Continuous Discharge, Peak Charge, Continuous	 3.3 kW 3.3 kW 3.3 kW	 5.0 kW 7.0 kW (10 sec) 3.3 kW
Energy	6.4 kWh	9.1 kWh 9.8 kWh (off-grid mode)
DC Voltage	350 V to 450 V	
Maximum DC Current Continuous DC Current	9.5 A 9.5 A	20 A 14.3 A
Round Trip DC Efficiency (Beginning of Life)[1]	92.5%	93%

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature[2]	-20 °C to 50 °C (-4 °F to 122 °F)
Humidity	<95% condensing
Storage Conditions <24 hours <1 month <12 months	 -30 °C to 60 °C (-22 °F to 140 °F) -20 °C to 45 °C (-4 °F to 113 °F) -20 °C to 30 °C (-4 °F to 86 °F), State of Energy (SoE): 50% initial
Maximum Altitude	3000 m (9843 ft)
Ingress Rating	IP35 & NEMA 3R (Powerwall) IP67 (battery Pod only)
Impact Rating	IK09

MECHANICAL SPECIFICATIONS

Dimensions Length Width Depth	1302 mm (51.3 in) 862 mm (34 in) 183 mm (7.2 in)	
Weight	Daily: 95 kg (210 lbs)	Weekly: 101 kg (223 lbs)

[1] Values provided for 25 °C, 2 kW charge/discharge power, 400 V to 450 V DC bus.
[2] Performance might be de-rated in extreme ambient temperatures.

PHYSICAL REQUIREMENTS

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

⚠ Caution: Ensure that snow does not accumulate on top of or around Powerwall.

⚠ Caution: When installing Powerwall in a garage or near vehicles, keep it out of the driving path. If possible, install the Powerwall on a side wall and/or above the height of vehicle bumpers.

⚠ Caution: Powerwall has a pre-installed aesthetic front cover. To prevent damage, keep Powerwall flat on its back until just before lifting Powerwall onto the wall mount bracket.

Powerwall must be installed on an upright wall that can support 115 kg (254 lbs), the maximum weight of Powerwall and its installation packaging. The wall must be flush and extend to all edges of the system, allowing no access to the back of the unit once it is mounted. Do not mount Powerwall horizontally or upside down. Do not mount Powerwall on a wall that is tilted backward or forward more than 5 degrees.

Powerwall requires adequate clearance for installation, cabling, and airflow. Do not mount any other objects within the clearance space illustrated below, except those explicitly required by the installation (for example, conduit or DC disconnect depending on local installation codes). Do not install anything between Powerwall and the ceiling.

TEMPERATURE REQUIREMENTS

Powerwall is capable of charging and discharging within the full ambient temperature range listed in the Specifications section. At the high and low ends of the temperature range, Powerwall may limit charge or discharge power based on battery cell temperature to improve battery lifespan.

Installation in full sun raises the temperature inside the enclosure above ambient temperature. This temperature rise is not a safety risk, but can impact the performance of the batteries. Installation in full sun is not recommended to optimize the use of Powerwall.

Do not install Powerwall in a room with sustained elevated temperatures, such as a boiler room. The average ambient temperature over the system's life should be 30°C (86 °F) or less.

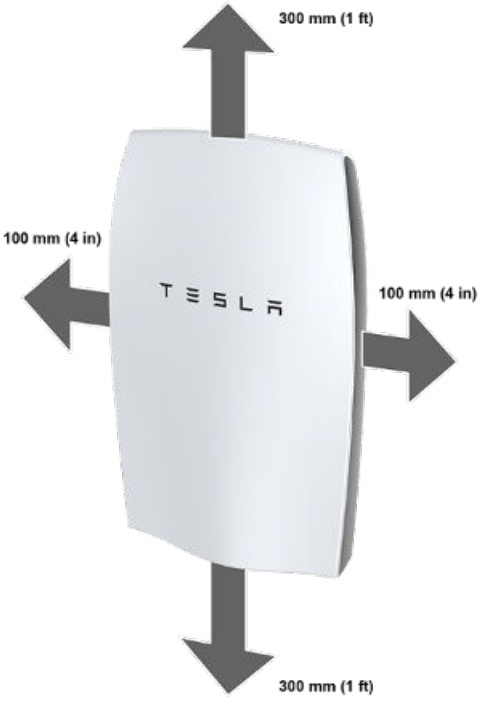
INSTALLATION REQUIREMENTS

Powerwall must be installed with a compatible inverter. Wiring and conduit (where necessary) must be provided by the installer.

DC disconnect requirements between Powerwall and the inverter are subject to local codes. Ensure that the installation meets local DC disconnect requirements. Check the inverter installation manual to understand site connections and overcurrent protection.

All U.S. and Canada electrical installations must be done in accordance with local codes and the National Electric Code (NEC) ANSI/NFPA 70 or the Canadian Electrical Code CSA C22.1.

All installations must conform to the laws, regulations, codes, and standards applicable in the jurisdiction of installation.



MINIMUM SPACE REQUIREMENTS

Height Total ceiling height Clearance above Clearance below	 2000 mm (6.5 ft) 300 mm (1 ft) 300 mm (1 ft)
Lateral Wall space Clearance from each side	 1070 mm (42 in) 100 mm (4 in)
Depth Depth of workspace[3]	 153 mm (6 in)

[3] Depth requirement is typically determined by working clearances required in the local installation code.

Powerwall must be installed by a Tesla Energy Certified Installer.

STEP 1 - REMOVE THE BOTTOM COVER
STEP 2 - REMOVE THE SPLASH COVER
STEP 3 - SET THE CONFIGURATION SWITCHES
STEP 4 - SET THE ADDRESS SWITCHES
STEP 5 - PREPARE THE WIRING
STEP 6 - CONNECT THE WIRING
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REQUIRED TOOLS

- Wall mount bracket fasteners

  Note: The details below are only guidance and are not guaranteed to be applicable. Consult local building codes and a structural engineer to ensure the use of appropriate fasteners.

  - Minimum of 6 fasteners, stainless steel, diameter 10 mm (3/8 in)
  - Fastener head clearance for all positions but two bottom outer holes: 18 mm (11/16 in)
  - Fastener head clearance for bottom two holes at 600 mm (24 in) spacing: 8 mm (5/16 in)
  - Washers between fastener heads and wall mount bracket are recommended
- Drill and a drill bit suitable for drilling pilot holes in the desired mounting surface
- Socket wrench
- 10 mm socket adapter (for covers and wall mount bracket side tabs)
- 17 mm socket adapter (for wood block bolts)
- Large flathead screwdriver (for ground lug)
- Optional: small flathead screwdriver (for wiring terminal tabs)
- T20 Torx (for splash cover)
- T25 Torx (for screws fastening box to wood blocks)
- T30 Torx (for packaging L-bracket and conduit/gland plate)
- Torque wrench
- Stud finder (for wood installations)
- Level tool
- Painter's tape and/or pencil
- Wire stripper and wiring (as described in Step 5)
- Conduit fitting or cable gland (as appropriate)
- Lift tool or adequate personnel trained and capable of lifting 115 kg (254 lb) from ground level to approximately chest height

  ⚠ Warning: Powerwall is heavy and challenging to lift. Lift equipment is recommended.

  To prevent injury, wear work boots (preferably steel-toed), long pants, and gloves.

STEP 1 - REMOVE THE BOTTOM COVER

⚠ Warning: Before beginning the wiring portion of the installation, verify that the inverter is powered off.

1. Lay the box flat on the ground with the pallet side down.

2. Use a T25 Torx to remove 2 screws from each of the 8 blocks on the box sides (shown in the next image). Do not remove the screws near the corners of the box.
3. Lift the box lid and set it aside.
4. Use a 10 mm hex socket to remove a 10 mm external hex M6 screw on each side of the bottom cover.
5. Carefully slide off the bottom cover, ensuring that nothing is caught or bent.
6. Set the bottom cover and the 2 screws aside for reassembly after the wiring is complete.

STEP 2 - REMOVE THE SPLASH COVER

Note: When the splash cover is removed, an Enable circuit disables the internal electronics of Powerwall. The Enable button is located at the bottom of the circuit board, near the HV power connectors.

⚠ Warning: Ensure the Enable button is not pressed by any wiring.

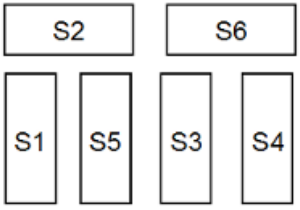
⚠ Warning: The Enable button only disables power from Powerwall. It does not disable power from the inverter.

1. Turn off power to the relevant areas of the building at the circuit breaker panel.
2. Turn off the inverter.
3. Open the DC disconnect switch (if applicable for the installation).
4. Use a multimeter to verify that the wires from the inverter to Powerwall are not live.
5. Use a T20 Torx driver to remove the two splash cover screws.
6. Carefully remove the splash cover. Ensure that nothing is caught or bent. Set the screws and cover aside for reassembly after the wiring is complete.

⚠ Warning: Use a multimeter to ensure no voltage is present on the terminals of the Powerwall circuit board.

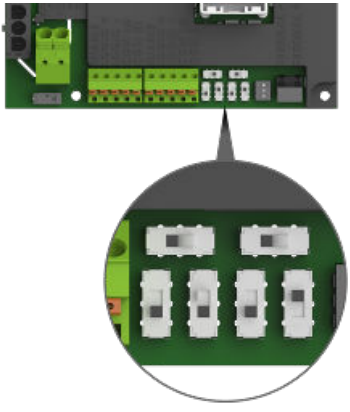
STEP 3 - SET THE COMMUNICATION SWITCHES

Communication switches are located on the lower right side of the board, next to the communication connectors. The switches are independent and are labeled on the board:



1. Refer to the inverter manual to determine whether to use CAN or Modbus communication.
2. Set the switches based on whether the installation is one unit or multi-unit. A single Powerwall, or the last Powerwall in a multi-unit chain, has one setting. All other Powerwalls in a multi-unit chain have a second setting.

Switch Number	Single/Last Unit, CAN	Multi-unit, CAN	Single/Last Unit, Modbus	Multi-unit, Modbus
S2	Right	Right	Left	Left
S6	Right	Right	Left	Left
S1	Up	Up	Down	Down
S5	Down	Up	Down	Down
S3	Down	Down	Down	Down
S4	Up	Up	Up	Down



STEP 4 - SET THE ADDRESS SWITCHES

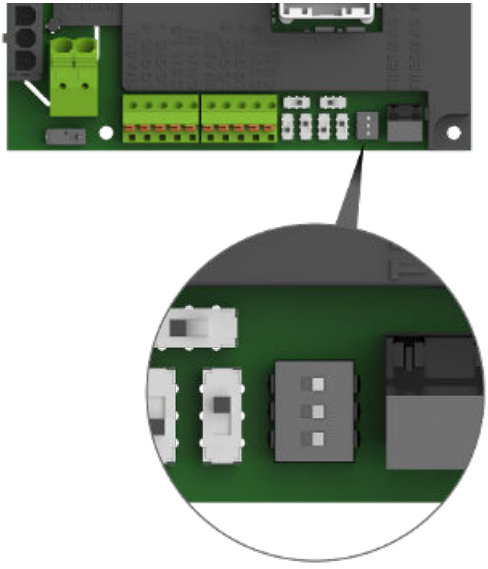
DIP switches are located closer to the thermal power connectors. This block has three white pins numbered “1”, “2”, and “3” from top to bottom with a value of ‘1’ to the left and ‘0’ to the right. These switches are used to offset the address from 0 through 7.

- Over Modbus, the base address is 0x18 (24). This is added to the DIP switch settings for the overall Powerwall address, with values between 0x18 and 0x1F (24-31).
- Over CAN, the base address is 0x50 (80). This is added to the DIP switch settings for the overall Powerwall address, with values between 0x50 and 0x57 (80-87).

Set the switches according to Powerwall position. In a multi-Powerwall configuration, use the DIP switches to select contiguous and discrete offsets from 0 through 7 (with 0 as the first Powerwall, 1 as the second Powerwall, continuing to 7 as the last Powerwall).

Set a single Powerwall using Powerwall 0 settings.

Switch Number	PW 0	PW 1	PW 2	PW 3	PW 4	PW 5	PW 6	PW 7
1	Right	Left	Right	Left	Right	Left	Right	Left
2	Right	Right	Left	Left	Right	Right	Left	Left
3	Right	Right	Right	Right	Left	Left	Left	Left



STEP 5 - PREPARE THE WIRING

Refer to local building and electrical codes when selecting appropriate wire gauge and length. Cut the ends of the wires to have clean, even ends. Strip the ends of the wires enough to make solid contact in the connector, while ensuring that no bare wire extends beyond the connector edge.

Depending on the configuration of the inverter, a single 12 V power connection to the 12V thermal connector can supply power to the logic, the pump, and the fan. If the inverter has two 12 V connections, be sure to match the connection correctly within the system. The Logic 12 V might be called "Logic," "Always On," "Communication," or similar. The Thermal 12 V might be called "Thermal," Switched," "Pump/Fan," "Cooling," or similar.

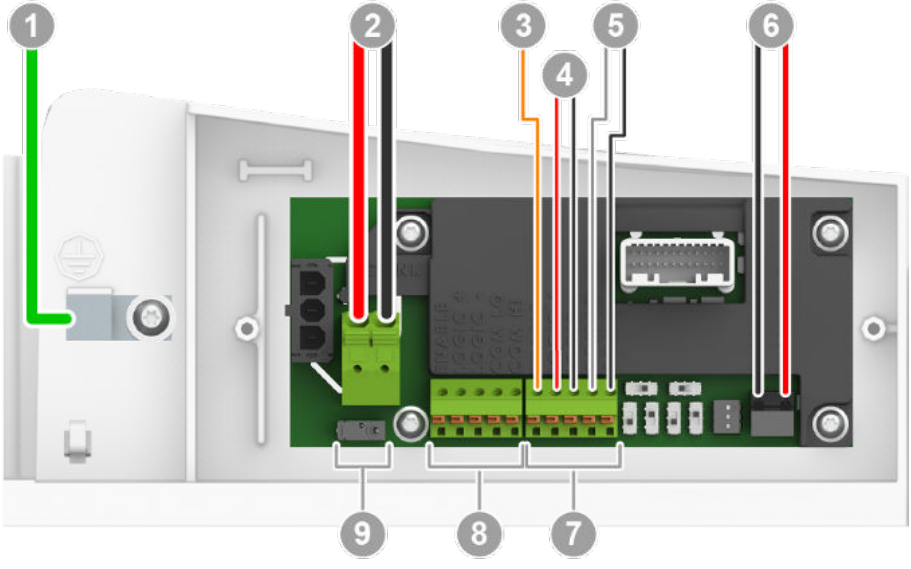
⚠ Caution: Do not splice 12 V wiring inside Powerwall.

⚠ Caution: Do not add extra wiring to the left of the conduit or gland entry. Additional wiring may interfere with water ingress and high voltage shielding to the pump.

Note: Use shielded communication wire and ground the shielding at one end. This reduces the possibility of noise on the communication cable. Do not ground the shield at both ends, which would create a ground loop.

The 450 VDC cable is run in close proximity to the communication cabling. Therefore, ensure that all cables to Powerwall are at least 600 V insulation class and are wet or oil rated.

	Type	Wire Gauge	Wire Strip Length
1	Ground[4]	4-10 mm^2 (6-12 AWG), 60 °C	8 to 12 mm
2	High voltage (+/-)	4-6 mm^2 (10-12 AWG), 60 °C	12 to 16 mm
3	Enable line	0.5-1 mm^2 (18-22 AWG), 60 °C	7 to 9 mm
4	Logic (+/-)	0.5-1 mm^2 (18-22 AWG), 60 °C	7 to 9 mm
5	Communications	0.5-1 mm^2 (18-22 AWG), 60 °C	7 to 9 mm
6	Thermal power (+/-)	1.5 mm^2 (16 AWG), 60 °C	7 to 9 mm
7	Primary connector (J7)		
8	Output connector for multiple units (J6)		
9	Enable button (disables power when splash cover is off)		



[4] Ground must be 10 mm^2 in regions where IEC 62109 applies.

STEP 6 - CONNECT THE WIRING

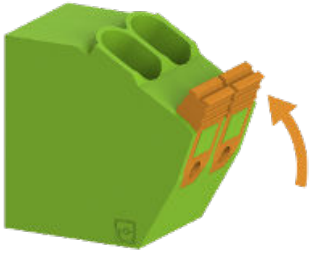
For the chassis ground connection:

1. Loosen the screw terminal with a flathead screwdriver.
2. Insert the ground wire into the ground lug, beneath the screw.
3. Tighten the screw terminal with a flathead screwdriver.

For the high voltage connection:

1. Pull both locking tabs on the spring terminal away from the board and toward the wall.
2. Insert the Positive High Voltage wire into the left slot marked "+", all the way to the bottom. Close the locking tab by pushing it up and away from the wall, so that the tab is flush with the connector.
3. Insert the Negative High Voltage wire into the right slot marked "-", all the way to the bottom. Close the locking tab by pushing it up and away from the wall, so that the tab is flush with the connector.
4. Lightly tug on each wire to ensure it is seated properly.
5. If any wire must be removed, pull the locking tab open, then pull out the wire.

⚠ Warning: Verify that both High Voltage tabs are locked completely shut over the wires (the image shows the correct position). The tabs have an intermediate position that shuts halfway, which is NOT electrically safe.



For the J7 Communication Port:

1. Insert the wire for the Enable line into the leftmost port labeled "ENABLE".
2. Insert the wire for Logic Power (Power) into the second port labeled "LOGIC+".
3. Insert the wire for Logic Power (Return) into the third port labeled "LOGIC-".
4. Insert the wire for Negative Communication to the fourth port labeled "COM LO".
5. Insert the wire for Positive Communication to the fifth port labeled "COM HI".
6. Lightly tug on each wire to ensure it is seated properly.
7. If any wire must be removed, push down on the appropriate button, then pull the wire out.

   Note: A small screwdriver might be needed to push the release down far enough.

For thermal power:

1. Insert the wire for Thermal Power (Return) into the port labeled "THERMAL -".
2. Insert the wire for Thermal Power (Power) into the port labeled "THERMAL +".
3. Lightly tug on each wire to ensure it is seated properly.
4. If any wire must be removed, push down on the appropriate button, then pull the wire out.

   Note: A small screwdriver might be needed to push the release down far enough.

At this point, all wires should be connected, leaving the communication port (J6) on the left unused. Ensure that all wires are routed around the existing cables and towards the top left of the circuit board (at the front of Powerwall).

If installing multiple Powerwalls, communication wires can be daisy-chained as described in the next section.

Verify that the polarities of all power and communication cables are correct.

STEP 7 - ATTACH THE SPLASH COVER

1. Align the splash cover with the circuit board.
2. Route the wires upward (away from the wall) to keep them away from the Enable button. When the splash cover is removed, the Enable button disables power to the unit for service.

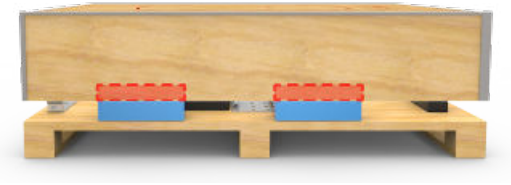
   ⚠ Warning: Misrouted wiring that keeps the button pressed in when the cover is off can create a risk of electric shock. Ensure the Enable button is not pressed by any wiring.
3. Ensure that all wires route out of the splash cover through its opening, and that wires are not pinched or kinked.
4. Ensure that the Enable button is pressed when the cover is attached. Listen for the click of the button being pressed.
5. Use a T20 Torx driver to attach the splash cover with two M4 screws. Torque to 3 Nm (27 in-lbs).

STEP 8 - REMOVE THE PALLET

⚠ Caution: Reinstall the front cover of the box for structural stability while lifting.

Note: Two people are needed for this procedure.

1. Place the box lid carefully back over Powerwall and move it sideways until the top of the box touches Powerwall inside. This leaves room for the bottom of the box to flex without damaging Powerwall's bottom cover.
2. Align the lower edge of the box between the upper and lower wood blocks on the sides of the Powerwall.



3. Use a T25 Torx to securely attach the same 2 screws into each of the 4 upper blocks attached to the sides of the Powerwall. Now the Powerwall is secured to the sides of the box with the top blocks, and the bottom blocks remain with the pallet.
4. Tuck all wiring into the box lid to avoid pinching or pulling the wires.
5. With one hand on the front cover and one hand under the pallet towards the top corner, both installers carefully tilt the box up onto its bottom end so that the printed Powerwall image on the package cover is standing right side up. Ensure the box is in a stable location, such as against a wall, where it will not be bumped or tip over.

6. Remove the pallet. The mounting cleat on the back of Powerwall should now be visible, and extend past the edge of the box for easy installation.

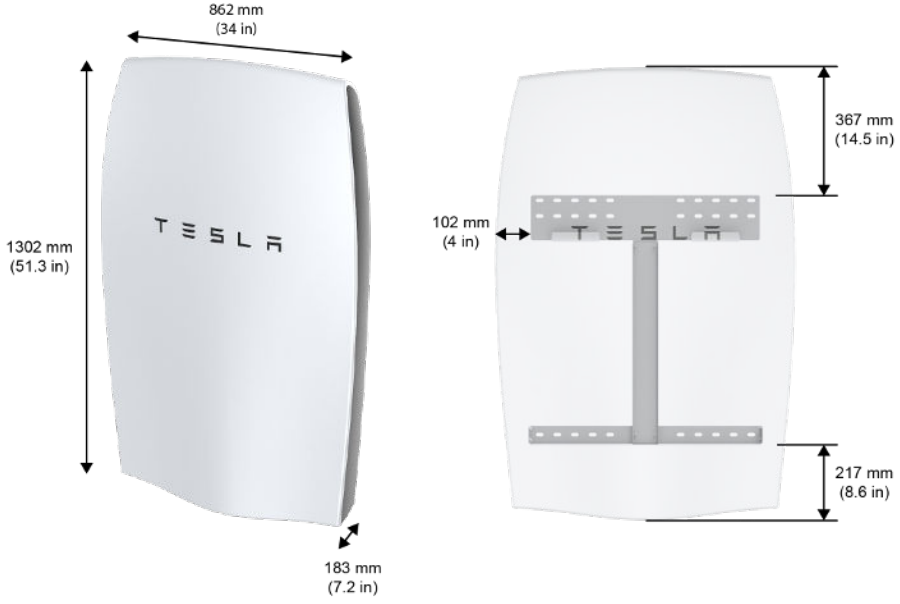
7. Verify that the box contains the following items:
   - Powerwall
   - Wall mount bracket (wall mounting fasteners are not included)
   - Two side covers
   - Two M6, 10 mm external hex bolts for the wall mount bracket side tabs (plus one spare bolt for side tabs or bottom cover)
   - Spare M4, T20 bolt (if needed for splash cover)

   If any parts are damaged or missing, contact the Tesla Energy Authorized Reseller or Tesla Energy Certified Installer. If any damage is detected, address high voltage and other safety risks immediately. Do not continue the installation procedure.
8. Remove the wall mount bracket from its foam padding on the inside face of the pallet.

STEP 9 - DETERMINE THE MOUNTING LOCATION FOR POWERWALL

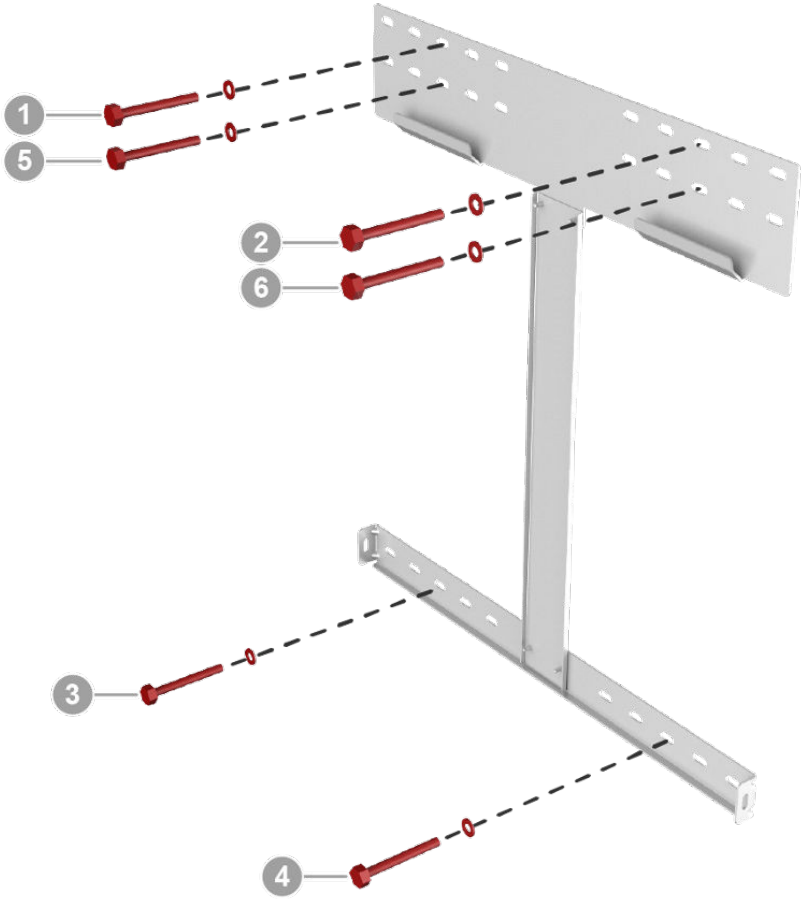
1. Using the wall mount bracket as a guide, measure the proposed location for Powerwall. The bracket must be bolted into studs or a load-bearing wall, and allow clearance on all sides as shown in Site Requirements.
2. If mounting into wood, use a stud finder to locate and temporarily mark the center of the wooden studs. It is important to install each fastener as close to the middle of each stud as possible.
3. Position the thicker part of the bracket at the top, so that the flat side is flush with the wall. Use the bracket as a guide to mark the location of the holes on the wall. Space the holes 200, 300, 400, 500, or 600 mm (8, 12, 16, 20, or 24 in) apart.

   Note: Use a level tool to ensure that the bracket is level.



STEP 10 - INSTALL THE WALL MOUNT BRACKET

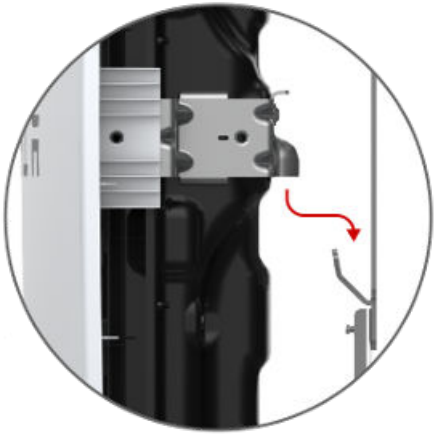
1. Drill the pilot holes to attach the wall mount bracket to the wall.
2. Install at least four washers and fasteners into the top part of the bracket and two washers and fasteners into the bottom of the bracket. There must be at least one fastener in each of the six mounting hole rows. Install the fasteners in the order shown in the numbered image.



3. Verify that the bracket is firmly attached to the wall.
4. For easier alignment while lifting, use tape or a pencil to mark the wall at the height of the bracket lip on the outside edges of the intended mount point.

STEP 11 - MOUNT POWERWALL

1. With Powerwall still in its box, keeping it as level as possible, lift it so that the mounting cleat is just above the lip on the wall mount bracket. Use the tape or pencil marks on the wall as visual guides.
2. Lower Powerwall so that the cleat on the back of Powerwall fits securely over the lip on the bracket.



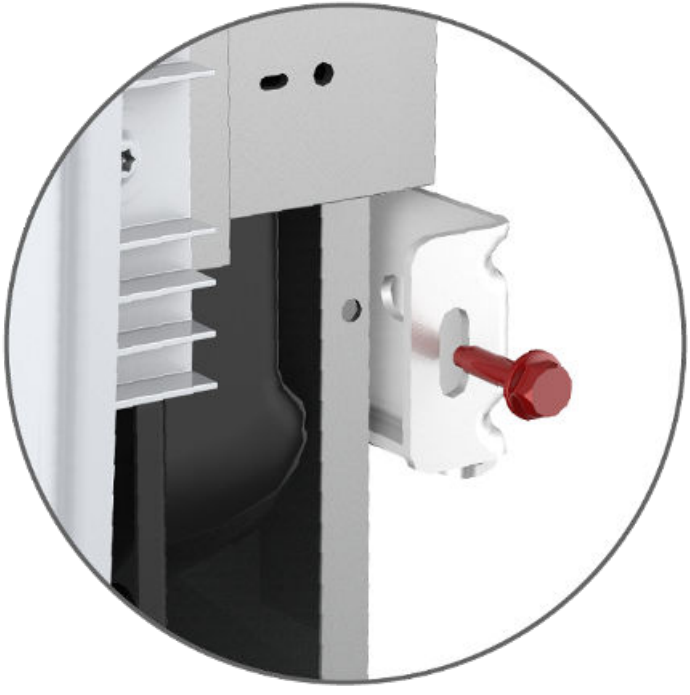
3. Ensure that Powerwall is centered on the bracket. When properly centered, Powerwall sits between the two protruding tabs on the bottom part of the bracket.

STEP 12 - REMOVE THE PACKAGING

Note: Two people are needed for this procedure.

1. First person: Hold the box in place from the bottom edge, to prevent the box from slipping and damaging Powerwall's front cover.
2. Second person: Use a T25 Torx to remove the 8 screws holding the box to the wooden blocks.
3. Being careful not to bump the box into the sides or edges of Powerwall's front cover, remove the box and carefully set it aside.

   Note: Leave the protective sticker on the Powerwall front cover until installation is complete.
4. Use a 17 mm socket to remove the 4 bolts that hold the wooden spacer blocks against the sides of Powerwall. Remove all 4 wooden blocks.
5. Use a T30 Torx driver to remove the screws from the metal L-brackets and discard.
6. Use a 10 mm socket tool and the 2 provided M6 external hex bolts to secure Powerwall to the lower tabs of the wall mount bracket. Torque to 7 Nm (62 in-lbs).



STEP 13 - FEED WIRES THROUGH THE CONDUIT PLATE OR CABLE GLAND

Depending on regional requirements, Powerwall can be installed either through conduit or through a cable gland. Follow local codes to determine which is appropriate.

The conduit plate hole has a 28.2 mm (1.11 in) diameter. It supports ¾" trade fittings, and PG-21 and M25 glands. The conduit plate has passed water ingress testing with individual cables squeezed together in a single gland. All fittings other than the conduit plate itself are provided by the installer.

The access point on Powerwall is centered on the bottom of the device.

1. Use a T30 Torx driver to remove the conduit plate.

2. For conduit configurations, feed the wires through the conduit and conduit opening. Make sure that wires are not frayed.
3. For cable gland configurations, push out the protective coverings and feed the wires through the gland. Make sure that wires are not frayed.
4. Tighten the gland or conduit opening to the housing plate.
5. If the conduit plate was removed, reattach it to Powerwall and torque to 7 Nm (62 in-lbs).
6. Route the cables along the same path as the internal wiring harness (toward the front of Powerwall), then down to reach their destinations as shown in the circuit board image. The plastic cover over the board has raised printing on it that names each terminal.

STEP 14 - CONNECT MULTIPLE POWERWALLS TOGETHER

If the site is installing multiple Powerwalls, follow these instructions for wiring the units. If not, skip to the next step.

Note: Ensure that the multi-Powerwall installation meets local requirements for DC disconnects and correctly rated overcurrent protection.

Note: Always check with the inverter partner for inverter abilities and instructions before connecting multiple Powerwalls.

1. Remove the splash cover as described above.
2. Connect the wiring coming from the inverter (communications +/-, enable line, and 12V Logic +/- wires) to the J7 connector as the primary connector.
3. Connect the output communications, enable, and 12V logic wiring going toward the next Powerwall to the J6 connector.
4. Run 12V thermal power independently to each Powerwall. Depending on the 12V power capability of the inverter, and the use case (running two Powerwalls simultaneously vs. in series), it may be necessary to add additional 12V power supplies. If the inverter's 12V power supply can support multiple Powerwalls, it is possible to splice multiple 12V runs together.

   ⚠ Caution: Do not splice 12V wiring inside Powerwall.
5. Run high voltage wiring independently to each Powerwall.
6. Reinstall the splash cover.

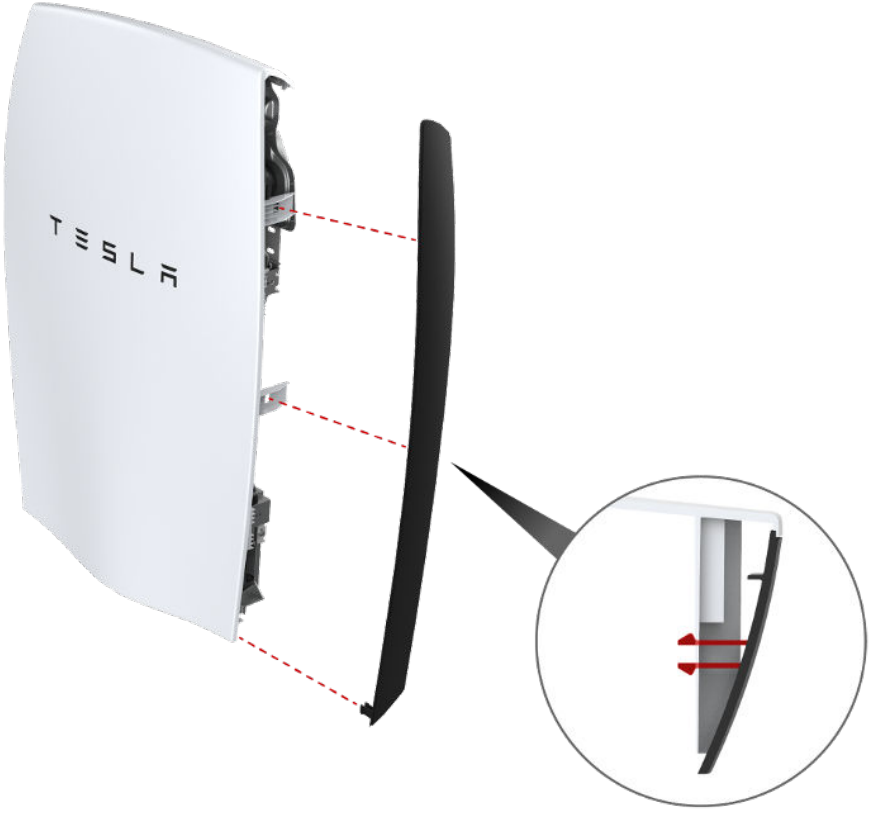
STEP 15 - CONNECT POWERWALL TO THE INVERTER

Run the wires between Powerwall and the inverter as described in the inverter manual. Follow local electrical installation codes for wire installation.

Note: Ensure that the installation meets local requirements for DC disconnects and correctly rated overcurrent protection.

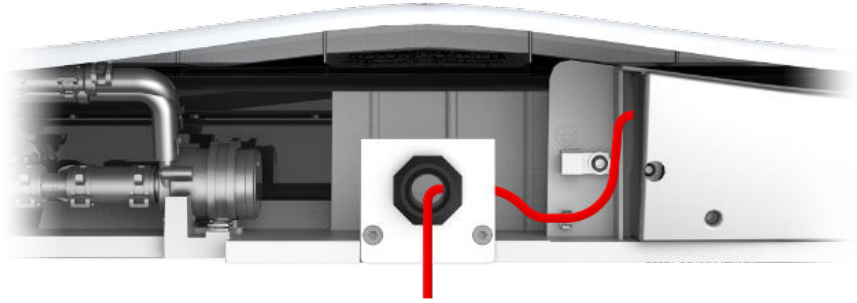
STEP 16 - ATTACH THE SIDE COVERS

1. Remove the side covers and the bag of enclosed fasteners from the shipping box.
2. Position the first side cover to the side of Powerwall that matches its curve.
3. Insert the top edge of the cover, then push in to fasten the top spring clip.
4. Fasten the bottom spring clip second, for easiest fit.
5. Fasten the middle spring clip. Verify that the entire length of the side cover is tucked completely under the edge of the front cover.
6. Repeat the installation steps on the opposite side for the other side cover.



STEP 17 - ATTACH THE BOTTOM COVER

1. Line up the bottom cover with the bottom of Powerwall, between the side covers.
2. Tuck the back edge of the bottom cover (closest to the wall) under the metal edge of the Powerwall body.
3. Route the wires to run from the conduit plate or gland back (toward the wall) below the ground lug, then forward again to match the internal wiring harness path under the splash cover into the circuit board. Verify that the wires are not pinched or kinked by the internal edge of the bottom cover.



4. Close the bottom cover carefully over the wiring. Verify that the edge of the bottom cover is tucked completely under the lip of the front cover.
5. Use a 10 mm hex socket to attach the bottom cover with an M6 screw on each side. Torque to 3 Nm (27 in-lbs).
6. Once installation is complete, gently peel the protective sticker from Powerwall's front cover.

STEP 18 - REPACK THE SHIPPING BOX

All Powerwall packing material is recyclable. To facilitate this process, place the packing materials into the shipping box in reverse order and return the shipping box to the Tesla Energy Authorized Reseller, or recycle onsite as appropriate.

NORMAL OPERATION

During normal operation, Powerwall is completely controlled by the inverter. If Powerwall and the inverter are installed correctly, the inverter can turn on Powerwall, begin communications, then begin to process power commands. See the inverter manual for further configuration instructions.

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 inverter.

Caution: Do not lean on, stack anything on top of, or hang anything from Powerwall or the conduit.

UNINTENDED OPERATION

Powerwall is not user serviceable and must be repaired by a Tesla Energy Certified Installer who has been trained by Tesla. If any problems arise, refer to Troubleshooting on page 29 before contacting the Tesla Energy Authorized Reseller who sold the Powerwall unit.

POWERWALL CARE

Keep the top edge of Powerwall clear of leaves and other debris if installed outside, to maintain optimal airflow.

To clean Powerwall, use a soft, lint-free cloth. The cloth can be dampened with only water if needed. It should not be dripping.

Caution: Do not use cleaning solvents to clean Powerwall.

If Powerwall is not working correctly, perform the following steps. If the issue persists, contact the Tesla Energy Authorized Reseller who originally sold the Powerwall.

- If Powerwall refuses to operate: check the temperature in the room and increase ventilation if needed.
- If the inverter and Powerwall are both unresponsive: switch off the breaker for the inverter, wait for at least one minute, and then turn it back on.
- If a brownout or blackout is experienced during backup: reduce the loads and check the breakers.
- If it is not possible to communicate with the inverter through its portal: ensure that the home Internet connection is working.
- Check the inverter manual to learn about diagnosing Powerwall.
- Follow the troubleshooting steps outlined in the inverter manual.

What to Do in Case of an Emergency

In the event of any threat to health or safety, always begin with these two steps:

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

Then, and only if it is safe to do so, attempt to address the other suggestions below.

- In case of a fire:
  - If it is safe to do so (and a disconnect exists), switch off the DC disconnect on the inverter.
  - If it is safe to do so, switch off the AC breaker to the inverter.
  - Acceptable fire extinguisher types are water, CO_2, and ABC. Avoid type D (flammable metal) extinguishers.
- In case of flooding:
  - Stay out of the water if any part of the battery, inverter, or wiring is submerged.
  - If it is safe to do so (and a disconnect exists), switch off the DC disconnect on the inverter.
  - If it is safe to do so, switch off the AC breaker to the inverter.
  - If possible and safe to do so, protect the system by finding and stopping the source of the water, and pumping water away.
  - Let the area dry completely before use.
- If there is an unusual smell or smoke:
  - If it is safe to do so (and a disconnect exists), switch off the DC disconnect on the inverter.
  - If it is safe to do so, switch off the AC breaker to the inverter.
  - Ensure nothing is in contact with Powerwall.
  - Ventilate the room.
  - Contact the Tesla Energy Authorized Reseller who sold the Powerwall.
- If Powerwall is leaking coolant:

  ⚠ Warning: According to the U.S. Environmental Protection Agency, coolant can be absorbed through the skin and cause damage to internal organs. Ensure that it does not touch or enter any part of the body including, but not limited to, skin, eyes, and mouth.

  - If it is safe to do so (and a disconnect exists), switch off the DC disconnect on the inverter.
  - If it is safe to do so, switch off the AC breaker to the inverter.
  - Ventilate the area.
  - Contact the Tesla Energy Authorized Reseller who sold the Powerwall.

  When cleaning up spilled coolant:

  - Wear safety goggles, rubber gloves, pants, a long sleeved shirt, and fully closed shoes.
  - Avoid further coolant spill by putting a bucket under the leak. Powerwall holds up to 1.6 L (1.69 qt) of coolant.
  - Pour cat litter, sawdust, or another absorbent material on the spill immediately. Allow the material to absorb as much of the coolant as possible.
  - Use paper towels to collect the material that was used and discard the soiled paper towels in a sealed plastic bag. Place the sealed plastic bag into the garbage.
  - Clean up anything that remains using soap and warm water.
- If Powerwall is making unusual noises:
  - If it is safe to do so (and a disconnect exists), switch off the DC disconnect on the inverter.
  - If it is safe to do so, switch off the AC breaker to the inverter.
  - Ensure that nothing is in the vent on top of Powerwall or in the fan.
  - If nothing was found, contact the Tesla Energy Authorized Reseller who sold the Powerwall.

3500 Deer Creek Road
Palo Alto, CA 94304

P/N: 1073317-00-B Dec. 23, 2015