

# Powerwall 3

## Power Everything

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**Powerwall 3** is a fully integrated solar and battery system designed to accelerate the world's transition to sustainable energy. Customers can receive whole home backup, cost savings, and energy independence by producing and consuming their own energy while participating in grid services. Once installed, customers can manage their home energy system using the Tesla App and customize system behavior to meet their energy goals.

Powerwall 3 achieves this by supporting up to 20 kW DC of solar and providing up to 11.04 kW AC of continuous power per unit. It has the ability to store up to 13.5 kWh of energy and start heavy loads rated up to 185 A LRA, meaning a single Powerwall 3 can support the power needs of most homes.

Powerwall 3 is designed for fast and efficient installations, modular system expansion, and simple connection to any electrical service. With multiple Powerwall 3 units and/or **Powerwall 3 Expansions**, it is easier and more affordable to scale up customers' systems to meet their current or future needs.



# Powerwall 3 Technical Specifications

## System Technical Specifications

|                                                                                              |                                                                                                              |           |           |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------|-----------|
| Part Number                                                                                  | 1707000-xx-y                                                                                                 |           |           |
| Nominal Grid Voltage (Input & Output)                                                        | 230 VAC                                                                                                      |           |           |
| Grid Type                                                                                    | Single phase                                                                                                 |           |           |
| Frequency                                                                                    | 50 Hz                                                                                                        |           |           |
| Total Battery Energy                                                                         | 14 kWh AC <sup>1</sup>                                                                                       |           |           |
| Usable Battery Energy                                                                        | 13.5 kWh AC <sup>1</sup>                                                                                     |           |           |
| Nominal Output Power (AC)                                                                    | 5 kW                                                                                                         | 10 kW     | 11.04 kW  |
| Maximum Apparent Power                                                                       | 5,000 VA                                                                                                     | 10,000 VA | 11,040 VA |
| Maximum Continuous Current                                                                   | 48 A                                                                                                         |           |           |
| Overcurrent Protection Device                                                                | 63 A                                                                                                         |           |           |
| Maximum Rated Continuous Charge Current / Power (Powerwall 3 only)                           | 21.7 A AC / 5 kW                                                                                             |           |           |
| Maximum Rated Continuous Charge Current / Power (Powerwall 3 with up to (3) Expansion units) | 34.8 A AC / 8 kW <sup>2</sup>                                                                                |           |           |
| Output Power Factor Rating                                                                   | 0 - 1 (Grid Code configurable)                                                                               |           |           |
| Maximum Output Fault Current                                                                 | 160 A                                                                                                        |           |           |
| Maximum Short-Circuit Current Rating                                                         | 10 kA                                                                                                        |           |           |
| Load Start Capability                                                                        | 185 locked rotor amps (LRA)                                                                                  |           |           |
| Power Scalability                                                                            | Up to 4 Powerwall 3 units supported <sup>3</sup>                                                             |           |           |
| Energy Scalability                                                                           | Up to 3 Expansion units (for a maximum total of 7 units)                                                     |           |           |
| Solar to Battery to Home/Grid Efficiency                                                     | 89% <sup>1,4</sup>                                                                                           |           |           |
| Solar to Home/Grid Efficiency                                                                | 97.5%                                                                                                        |           |           |
| Supported Islanding Device                                                                   | Backup Gateway 2                                                                                             |           |           |
| Connectivity                                                                                 | Wi-Fi (2.4 and 5 GHz), Ethernet, Cellular (LTE/4G <sup>5</sup> )                                             |           |           |
| Hardware Interface                                                                           | Dry contact relay, Dynamic Response Mode Interface, RS-485 for meters                                        |           |           |
| AC Metering                                                                                  | Revenue Grade (+/- 0.5%)                                                                                     |           |           |
| Protections                                                                                  | Integrated arc fault circuit interrupter (AFCI), Isolation Monitor Interrupter (IMI), Integrated DC Isolator |           |           |
| Customer Interface                                                                           | Tesla Mobile App                                                                                             |           |           |
| Warranty                                                                                     | 10 years                                                                                                     |           |           |

<sup>1</sup> Values provided for 25°C (77°F), at beginning of life. 3.3 kW charge/discharge power.

<sup>2</sup> Maximum continuous charge current/power is limited to 21.7 A / 5 kW when installed with Expansion units. A maximum continuous charge current/power of 34.8 A / 8 kW will be available with a future firmware version.

<sup>3</sup> The maximum number of Powerwall 3 units per installation may vary by market.

<sup>4</sup> Typical solar shifting use case.

<sup>5</sup> The customer is expected to provide internet connectivity for Powerwall 3; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

# Powerwall 3 Technical Specifications

## Solar Technical Specifications

|                                                     |                   |
|-----------------------------------------------------|-------------------|
| Maximum Solar STC Input                             | 20 kW             |
| Withstand Voltage                                   | 600 V DC          |
| PV DC Input Voltage Range                           | 60 — 550 V DC     |
| PV DC MPPT Voltage Range                            | 60 — 480 V DC     |
| MPPTs                                               | 3                 |
| Maximum Current per MPPT ( $I_{mp}$ )               | 30 A <sup>6</sup> |
| Maximum Short Circuit Current per MPPT ( $I_{sc}$ ) | 38 A              |

<sup>6</sup> Only applicable to Powerwall 3 units with 30 A IMP on the product label. Otherwise, Powerwall 3 has an IMP of 26 A.

## Environmental Specifications

|                         |                                                                                 |
|-------------------------|---------------------------------------------------------------------------------|
| Operating Temperature   | –20°C to 50°C <sup>7</sup>                                                      |
| Operating Humidity (RH) | Up to 100%, condensing                                                          |
| Storage Temperature     | –20°C to 30°C, up to 95% RH, non-condensing, State of Energy (SOE): 25% initial |
| Maximum Elevation       | 2000 m                                                                          |
| Environment             | Indoor and outdoor rated                                                        |
| Enclosure Rating        | IP55                                                                            |
| Ingress Rating          | IP67 (Battery & Power Electronics)<br>IP55 (Wiring Compartment)                 |
| Pollution Rating        | PD3                                                                             |
| Operating Noise @ 1 m   | < 50 db(A) typical, < 62 db(A) maximum                                          |

<sup>7</sup> Powerwall 3 is designed to operate in all climates, from temperatures of –20°C to 50°C. Performance may be de-rated at operating temperatures above 40°C.

## Compliance Information

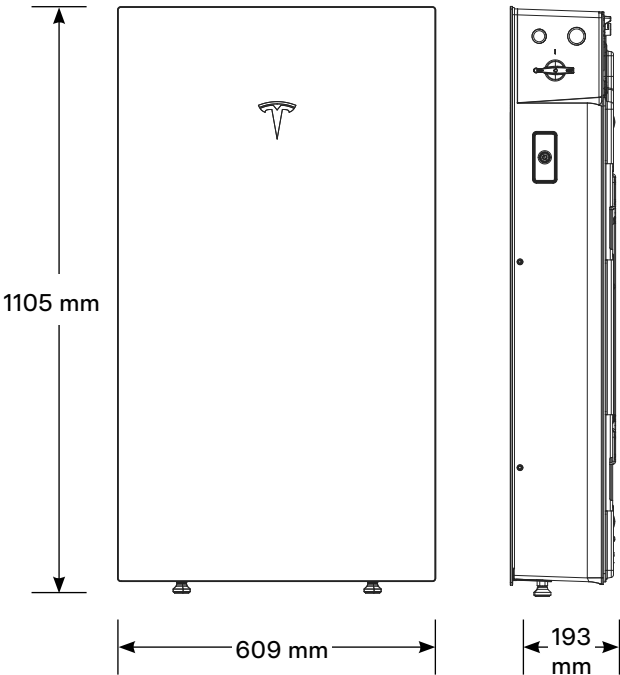
|                        |                                                                                                                                                                           |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certifications         | IEC 61000-6-1: 2016, IEC 61000-6-3: 2020, IEC 62477-1: 2022, IEC 62109-1: 2010, IEC 62109-2: 2011, IEC 62933-5-2: 2020, IEC 62619: 2022, UL 1973, UL 9540A, AS/NZS 4777.2 |
| Grid Connection        | Australia and New Zealand                                                                                                                                                 |
| Emissions              | FCC Part 15 Class B, ICES 003                                                                                                                                             |
| Environmental          | RoHS Directive 2011/65/EU<br>REACH Regulation EC 1907/2006                                                                                                                |
| Seismic                | AC156, IEEE 693-2005 (high)                                                                                                                                               |
| Fire Testing           | Meets the unit level performance criteria of UL 9540A                                                                                                                     |
| Country of Manufacture | USA                                                                                                                                                                       |

# Powerwall 3 Technical Specifications

## Mechanical Specifications

|                  |                                  |
|------------------|----------------------------------|
| Dimensions       | 1105 x 609 x 193 mm <sup>8</sup> |
| Weight           | 130 kg                           |
| Mounting Options | Floor or wall mount              |

<sup>8</sup> These dimensions include the glass front cover being installed on Powerwall 3.



# Powerwall 3 Expansion Technical Specifications

## Battery Technical Specifications

|                        |                           |
|------------------------|---------------------------|
| Model Number           | 1807000-xx-y              |
| Nominal Battery Energy | 13.5 kWh                  |
| Voltage Range          | 52 – 92 V DC <sup>9</sup> |

<sup>9</sup> Powerwall 3 Expansion units are connected in parallel and are not field serviceable.

## Powerwall 3 Model Numbers When Installed with Expansion(s)

| Model Number           | Powerwall 3 Configured Power Output | Number of Expansion Units |
|------------------------|-------------------------------------|---------------------------|
| 1707000-11.04 kVA-13.5 | 11.04 kW                            | None                      |
| 1707000-10 kVA-13.5    | 10 kW                               |                           |
| 1707000-5 kVA-13.5     | 5 kW                                |                           |
| 1707000-11.04 kVA-27   | 11.04 kW                            | 1                         |
| 1707000-10 kVA-27      | 10 kW                               |                           |
| 1707000-5 kVA-27       | 5 kW                                |                           |
| 1707000-11.04 kVA-40.5 | 11.04 kW                            | 2                         |
| 1707000-10 kVA-40.5    | 10 kW                               |                           |
| 1707000-5 kVA-40.5     | 5 kW                                |                           |
| 1707000-11.04 kVA-54   | 11.04 kW                            | 3                         |
| 1707000-10 kVA-54      | 10 kW                               |                           |
| 1707000-5 kVA-54       | 5 kW                                |                           |

## Environmental Specifications

|                         |                                                                                 |
|-------------------------|---------------------------------------------------------------------------------|
| Operating Temperature   | –20°C to 50°C <sup>10</sup>                                                     |
| Operating Humidity (RH) | Up to 100%, condensing                                                          |
| Storage Temperature     | –20°C to 30°C, up to 95% RH, non-condensing, State of Energy (SOE): 25% initial |
| Maximum Elevation       | 3000 m                                                                          |
| Environment             | Indoor and outdoor rated                                                        |
| Enclosure Rating        | NEMA 3R                                                                         |
| Ingress Rating          | IP67                                                                            |
| Pollution Rating        | PD3                                                                             |

<sup>10</sup> Performance may be de-rated at operating temperatures above 40°C (104°F).

## Compliance Information

|                |                                                                      |
|----------------|----------------------------------------------------------------------|
| Certifications | IEC 62619, IEC 62933-5-2, IEC 61000-6-1:2016, EN IEC 61000-6-3: 2020 |
|----------------|----------------------------------------------------------------------|

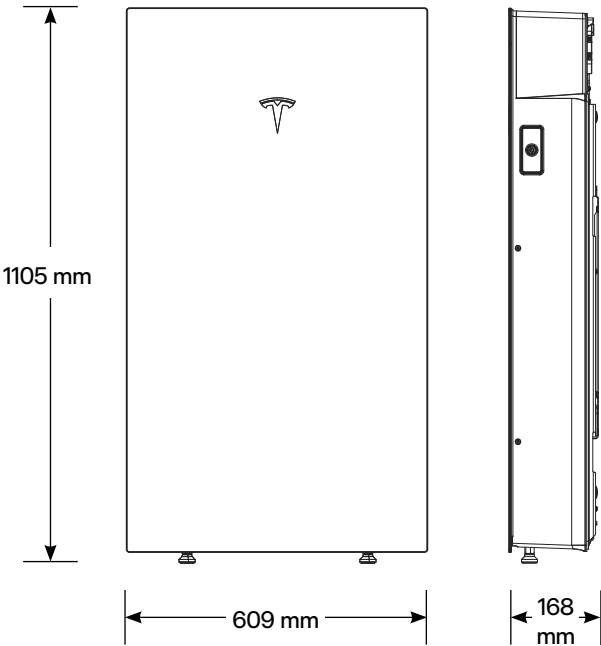
# Powerwall 3 Expansion Technical Specifications

## Mechanical Specifications

|                                             |                                                |
|---------------------------------------------|------------------------------------------------|
| Dimensions                                  | 1105 x 609 x 168 mm <sup>11</sup>              |
| Total Weight of Wall-Mounted Expansion Unit | 118.5 kg                                       |
| Weight of Expansion Unit                    | 110 kg                                         |
| Weight of Glass Front Cover                 | 6.5 kg                                         |
| Weight of Wall Bracket                      | 1.9 kg                                         |
| Weight of Expansion Accessories             | 0.7 kg                                         |
| Mounting Options                            | Floor or wall mount                            |
| Stacking Capability (Floor Mount Only)      | Up to (3) Expansion units behind a Powerwall 3 |
| Compatibility with Other Systems            | Only compatible with Powerwall 3               |
| Connection to Powerwall 3 or Expansions     | Powerwall 3 Expansion harness <sup>12</sup>    |

<sup>11</sup> These dimensions include the glass front cover being installed on Powerwall 3 Expansion.

<sup>12</sup> The Powerwall 3 Expansion harness is a listed component of the UL 9540 certification.



# Backup Gateway 2 Specifications

Backup Gateway 2 provides energy management and monitoring for solar self-consumption, time-based control, and backup operation. When Powerwall 3 is in Backup mode, Backup Gateway 2 controls connection to the grid, detects outage, and provides backup power.

## Electrical Specifications

|                                       |                                                                  |                                     |                                           |
|---------------------------------------|------------------------------------------------------------------|-------------------------------------|-------------------------------------------|
| AC Voltage (Nominal)                  | 230 V (Line-to-Neutral)<br>400 V (Line-to-Line)                  | Maximum Input Short Circuit Current | 10 kA                                     |
| Feed-In Type                          | Single Phase, Three Phase                                        | Overvoltage Category                | Category III                              |
| Grid Frequency                        | 50 Hz                                                            | AC Meter                            | Revenue accurate (+/- 0.2%) <sup>13</sup> |
| Maximum Overcurrent Protection Device | 100 A (single-phase service)<br><br>80 A (2- or 3-phase service) | Warranty                            | 10 years                                  |

<sup>13</sup> Revenue accurate when using Gateway internal site meter.

## Environmental Specifications

|                         |                             |                        |                          |
|-------------------------|-----------------------------|------------------------|--------------------------|
| Operating Temperature   | -20°C to 50°C <sup>14</sup> | Ingress Rating         | IP55                     |
| Operating Humidity (RH) | Up to 100%, condensing      | Environmental Category | Indoor and outdoor rated |
| Maximum Altitude        | 3000 m                      | Wet Location Rating    | Yes                      |
|                         |                             | Pollution Degree       | PD2                      |

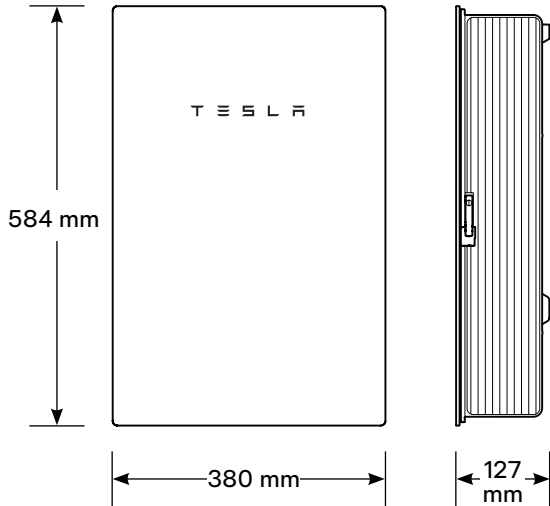
<sup>14</sup> Performance may be de-rated in extreme ambient temperatures.

## Compliance Information

|                         |                                                                                                                                                                                                                  |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety                  | IEC 62109-1, IEC 62053-22, IEC 61439-1, IEC 61439-3                                                                                                                                                              |
| EMC and Radio Equipment | EMC Directive 2014/30/EU, Radio Equipment Directive 2014/53/EU, IEC 61000-6-1, IEC 61000-6-3, EN 55024, EN 300 328, EN 300 440, EN 301 489-1, EN 301 489-17, EN 301 489-52, EN 301 511, EN 301 893, EN 301 908-1 |
| Environmental           | RoHS Directive 2011/65/EU, WEEE Directive 2012/19/EU, Battery Directive 2006/66/EC<br>REACH Regulation EC 1907/2006                                                                                              |
| Seismic                 | AC156, IEEE 693-2005 (high)                                                                                                                                                                                      |

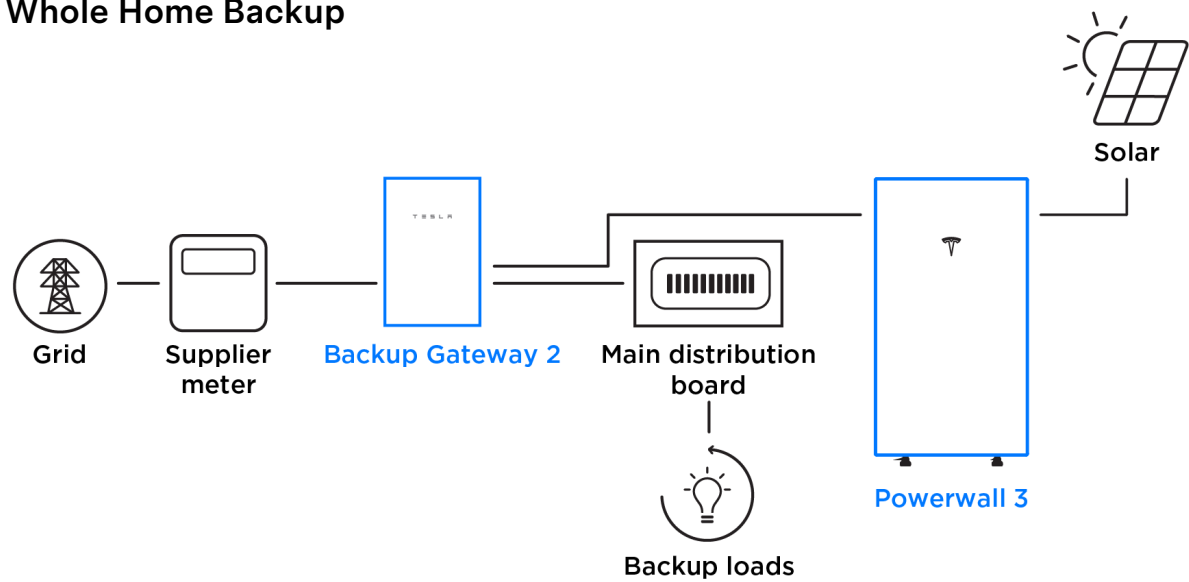
## Mechanical Specifications

|                          |                                                                      |
|--------------------------|----------------------------------------------------------------------|
| Dimensions               | 584 x 380 x 127 mm                                                   |
| Weight                   | 11.4 kg                                                              |
| Breaker Space (DIN rail) | Main breaker: 1-, 2- or 3-pole<br>Generation/Load breakers: 6 spaces |
| Mounting Options         | Wall mount                                                           |

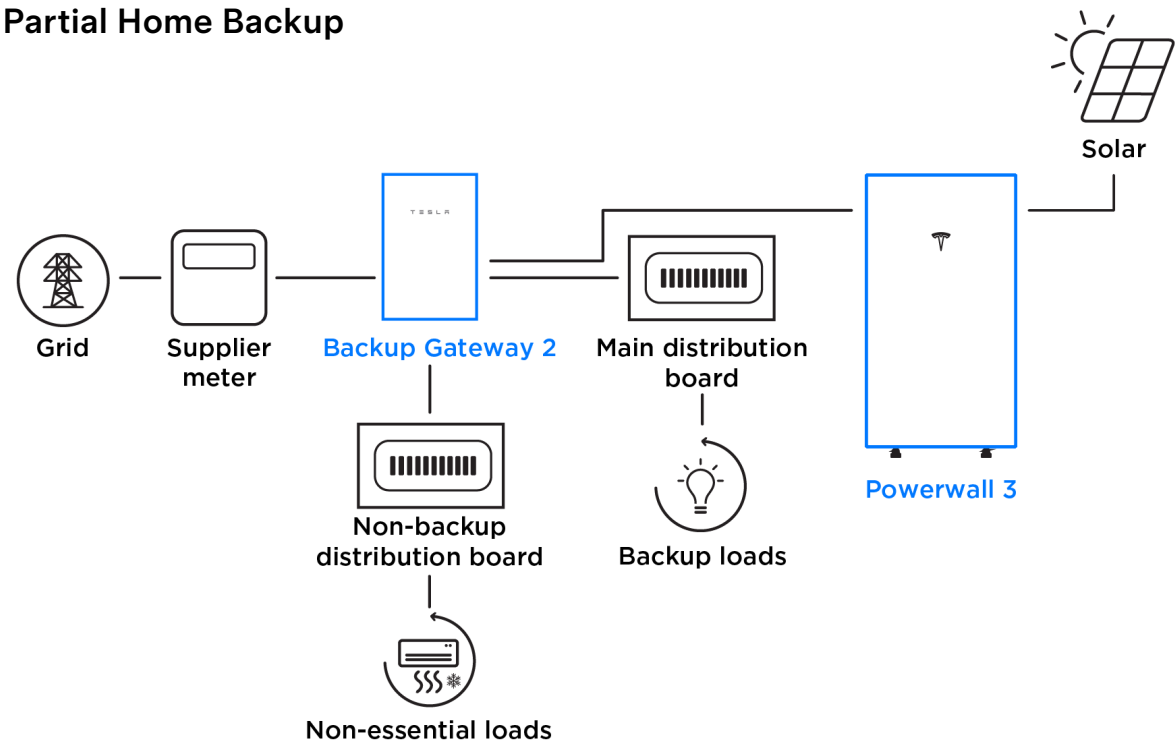


# Powerwall 3 Example System Configurations

## Whole Home Backup



## Partial Home Backup





# Powerwall 3 Example System Configurations

## Multi-Powerwall 3 System with up to (4) Powerwall 3 Units and up to (3) Expansion Units

