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. Powerwall 3 can store solar or grid energy for later use when the sun goes down or when the electricity prices are high; lowering their electricity bills, reducing their reliance on the grid, and power their homes during a grid outage. 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.

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		
Nominal Battery Energy	13.5 kWh AC[1]		
Model Number	1707000 - 5 kVA	1707000 - 10 kVA	1707000 - 11.04 kVA
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	21.7 A	43.5 A	48 A
Overcurrent Protection Device	32 A	50 A	63 A
Maximum Continuous Charge Power	5 kW		
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[2]		
Solar to Battery to Home/Grid Efficiency	89%[1,3]		
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[4])		
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		

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})	26 A
Maximum Short Circuit Current per MPPT (I_{sc})	30 A

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

[2] The maximum number of Powerwall 3 units per installation may vary by market.

[3] Typical solar shifting use case.

[4] 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

Environmental Specifications

Operating Temperature	–20°C to 50°C [5]
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	IP55
Ingress Rating	IP67 (Battery & Power Electronics) IP55 (Wiring Compartment)
Pollution Rating	PD3
Operating Noise @ 1 m	< 50 db(A) typical, < 62 db(A) maximum

[5] 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.

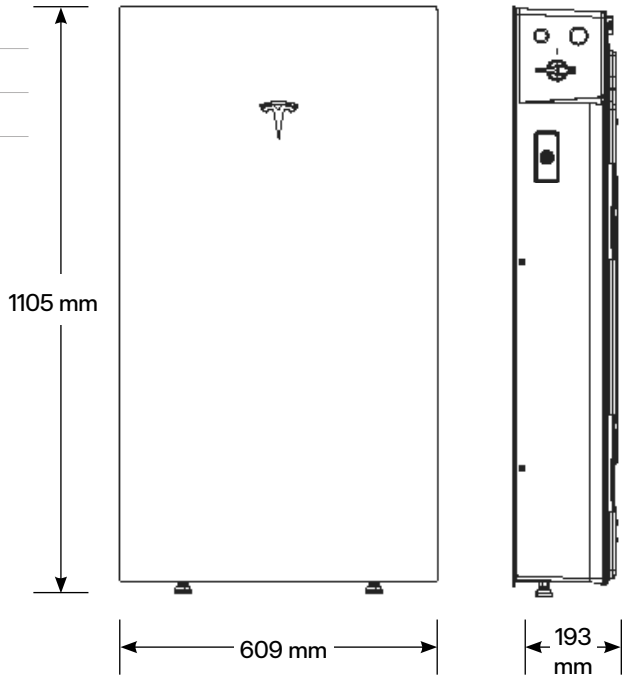
Compliance Information

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 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

Mechanical Specifications

Dimensions	1105 x 609 x 193 mm [6]
Weight	130 kg
Mounting Options	Floor or wall mount

[6] These dimensions include the glass front cover being installed on Powerwall 3.



Backup Gateway 2 Specifications

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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) 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%) [7]
Maximum Overcurrent Protection Device	100 A (single-phase service) 80 A (2- or 3-phase service)	**Warranty**	10 years

[7] Revenue accurate when using Gateway internal site meter.

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 REACH Regulation EC 1907/2006
Seismic	AC156, IEEE 693-2005 (high)

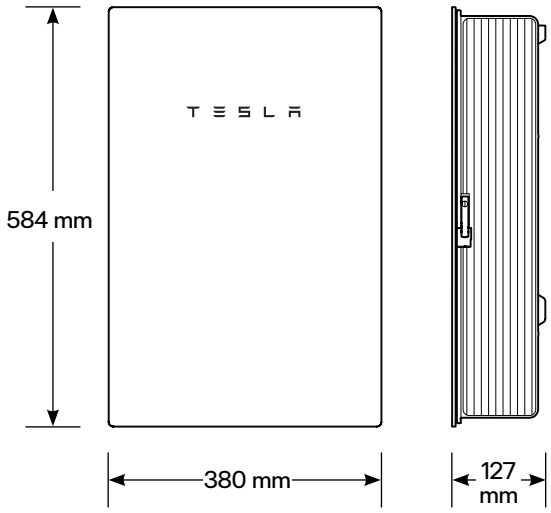
Environmental Specifications

Operating Temperature	–20°C to 50°C [8]
Operating Humidity (RH)	Up to 100%, condensing
Maximum Altitude	3000 m
Ingress Rating	IP55
Environmental Category	Indoor and outdoor rated
Wet Location Rating	Yes
Pollution Degree	PD2

[8] Performance may be de-rated in extreme ambient temperatures.

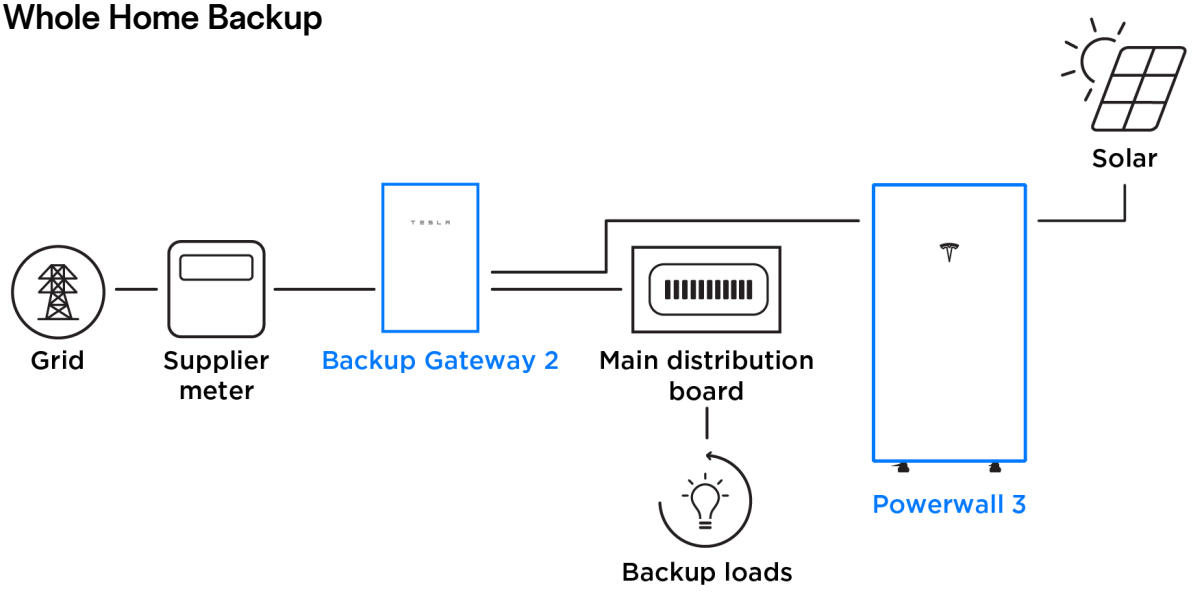
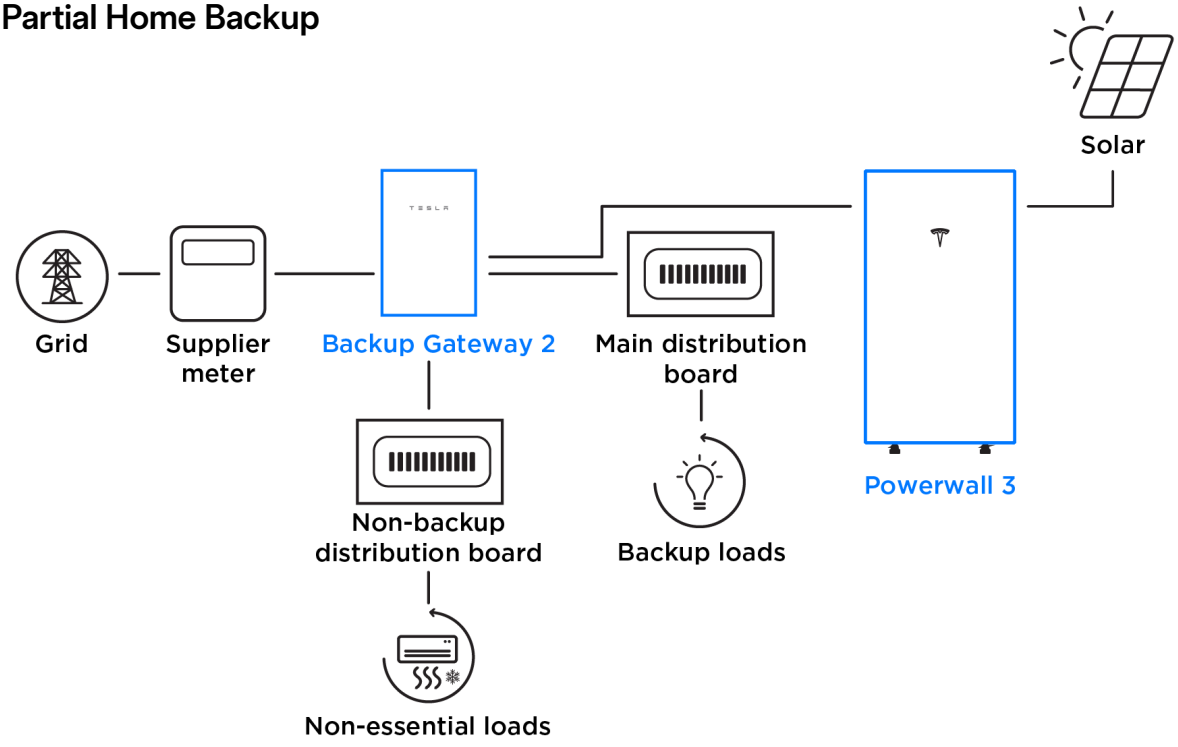
Mechanical Specifications

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



Powerwall 3 Example System Configurations

Whole Home Backup



Partial Home Backup