



**2021**

# **Welcome Packet**





# FULFILLMENT ADDERS

ADDER SERVICE	COST/WATT	FIXED COST	NOTES
Travel Adder 0-60 miles from closest market office		\$0	
Travel Adder 61-100 miles from closest market office		\$1,000	
Travel Adder 101+ miles from closest market office		\$2,000	
Ground Mount Adder	\$0.05		
Flat Roof Adder	\$0.20		
Trenching (Dirt)	\$15/ft.		
Reverse Tilt	DQ		Reverse Tilt = DQ (Will Not Do)
Concrete Tile	\$0.30		Clay Tile = DQ (Will Not Do)
Feasibility Study (Commercial)	\$0.01		
Main Panel Upgrade		\$1,200	
Line Side Tap		\$300	*Additional \$400 for CPS (San Antonio)
Gut Swap		\$300	
Meter Can Upgrade		\$300	
Physical Site Survey		\$200	Included in Rate
Eagle View (Remote Site Survey)		\$50	Included in Rate
Aurora Design & Shade Study		\$150	Included in Rate
Engineered Design		\$150	Included in Rate
Engineered Electrical Stamp		\$150	Included in Rate
Engineered Structural Stamp		\$100	Included in Rate
HOA Application/Retrieval		\$200	Included in Rate
City/Utility Inspection		\$150	Included in Rate
City Permit		--	Permitting costs over \$350 passed through
Wind Rating Certificate		100%	Direct cost pass through
Truck Roll/Service Call	\$100/hour		



## FULFILMENT DEFINED

ADDER SERVICE			NOTES
Modules	REC ALPHA BLACK 360	Included	
Operations & Maintenance (Years)	25	Included	
Warranty (Years)	25	Included	
Racking	Unirac	Included	
Inverter	Enphase IQ7+	Included	Micro
Engineering (Structural/Electrical)	Yes	Included	
Shade Study	Thermal Study	Included	
Site Survey (Remote)	Satellite images of roof		Sales Rep needs to take pictures of the main panel, equipment wall, front of house, etc. See "Site Survey Bypass Requirements" documents for further details.



**Last Updated**  
**4/14/20**

#### Site Survey Bypass Picture Requirements.

These instructions are for those jobs where there is no site survey done. The roof dimensions can be received through an outside service such as Eagle View. In order to interconnect into the grid we still need to understand the current configuration of the electrical box and utility meter located on the property. A series of pictures taken correctly can usually give us the required information.

The following pictures should be taken and uploaded to our server (See Figures 1-13):

- 1. Picture from the front of the home showing the house number as well as the side of the home that the meter and breaker box are located.**
- 2. Pictures of the Electrical Service panel and meter.**
  - a. Close up of the PV Meter.**
  - b. Picture of the Electrical panel from 15-20 feet taken directly in front of the box.**
  - c. Picture of the Electrical panel from 15-20 feet taken at an angle showing the location where we can place the inverter and other PV equipment.**
  - d. Close up of the electrical panel opened up showing the breakers.**
  - e. Close up of the main breaker (showing the value if visible), i.e. 200 Amps.**
  - f. Close up of the panel sticker showing the manufacture and part number of the panel. This is usually located on the back of the door.**
- 3. Pictures of each side of the house showing the eaves and walls in case we need to route conduits around the house we can see what each side looks like.**
- 4. Utility Bill and Attic photos.**

#### Sample Pictures:



Figure 1: Front of home



Figure 2: Side of home with meter



Figure 3: Front view of Electrical Box and Utility Meter



Figure 4: Close up of Utility Meter so we can read Utility Co.



Figure 5: Side view of Utility Meter and Panel

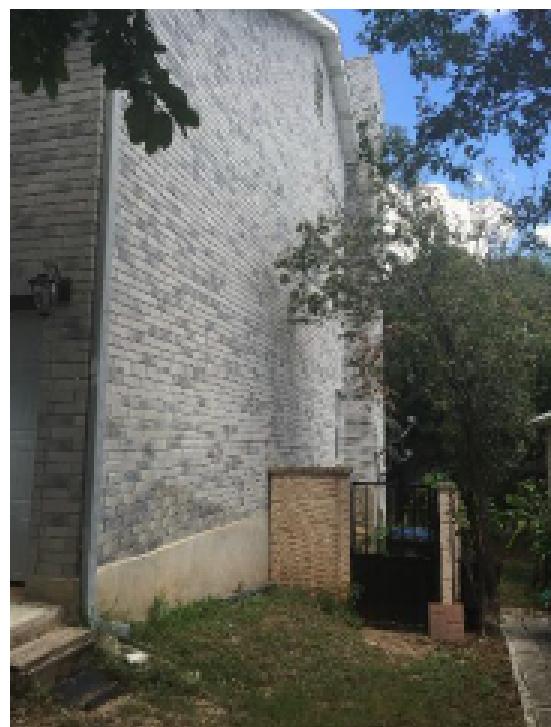


Figure 6: Other side of home.



Figure 7: Picture of inside of Electrical meter

We need to be able to see Main Breaker Amperage



Figure 8: Close up of breakers (IN FOCUS)



Figure 9: Picture of Electrical Panel Sticker (IN FOCUS)

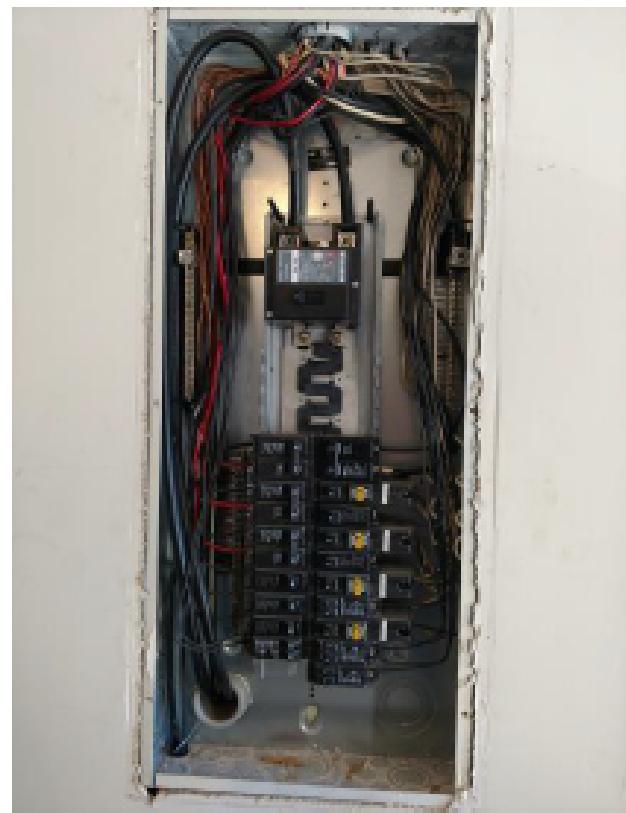


Figure 10: Electrical Box with Dead Front Removed.



Figure 11: Meter Location

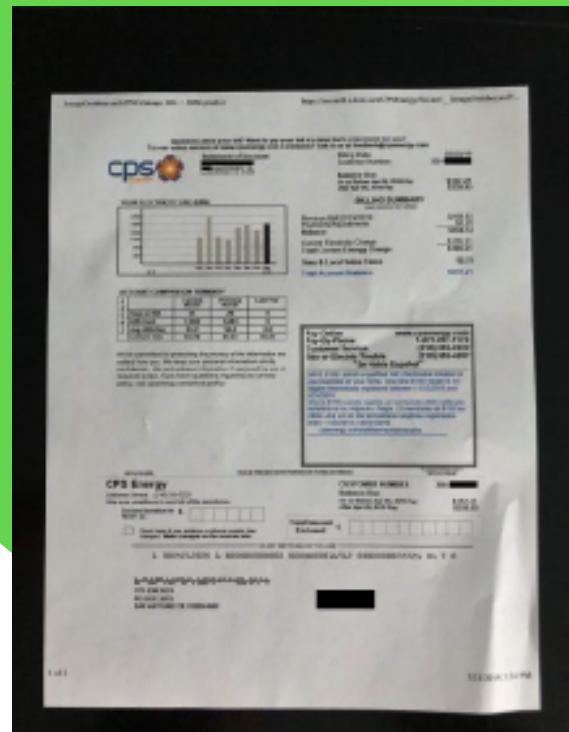


Figure 12: Utility bill (paper copy or online)



Figure 13: Attic photo showing rafter/seam spacing.



SOLAR'S MOST TRUSTED



# REC ALPH $\alpha$ BLACK SERIES

375  
WP  
POWER

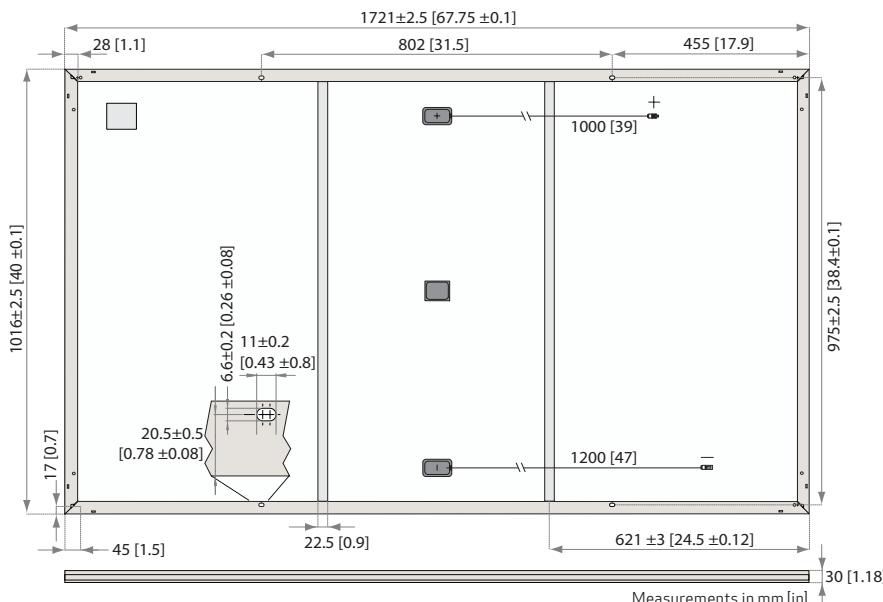


EXPERIENCE  
 $\alpha$   
PERFORMANCE



# REC ALPHA BLACK SERIES

## PRODUCT DATASHEET



### GENERAL DATA

Cell type:	120 half-cut cells with REC heterojunction cell technology 6 strings of 20 cells in series	Connectors:	Stäubli MC4 PV-KBT4/KST4, 12 AWG (4 mm <sup>2</sup> ) in accordance with IEC 62852 IP68 only when connected
Glass:	0.13 in (3.2 mm) solar glass with anti-reflection surface treatment	Cable:	12 AWG (4 mm <sup>2</sup> ) PV wire, 39 + 47 in (1 + 1.2 m) in accordance with EN50618
Backsheet:	Highly resistant polymeric construction (black)	Dimensions:	67.8 x 40 x 1.2 in (1721 x 1016 x 30 mm) 18.8 sq ft (1.75 m <sup>2</sup> )
Frame:	Anodized aluminum (black)	Weight:	43 lbs (19.5 kg)
Junction box:	3-part, 3 bypass diodes, IP67 rated in accordance with IEC 62790	Origin:	Made in Singapore

### ELECTRICAL DATA

STC	Product Code*: RECxxxAA Black				
	355	360	365	370	375
Power Output - P <sub>MAX</sub> (Wp)	355	360	365	370	375
Watt Class Sorting - (W)	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5
Nominal Power Voltage - V <sub>MPP</sub> (V)	36.4	36.7	37.1	37.4	37.8
Nominal Power Current - I <sub>MPP</sub> (A)	9.77	9.82	9.85	9.9	9.94
Open Circuit Voltage - V <sub>OC</sub> (V)	43.6	43.9	44.0	44.1	44.2
Short Circuit Current - I <sub>SC</sub> (A)	10.47	10.49	10.52	10.55	10.58
Power Density (W/sq ft)	18.88	19.15	19.41	19.68	19.94
Panel Efficiency (%)	20.3	20.6	20.9	21.2	21.4
Power Output - P <sub>MAX</sub> (Wp)	271	274	278	282	286
Nominal Power Voltage - V <sub>MPP</sub> (V)	34.3	34.6	35.0	35.2	35.6
Nominal Power Current - I <sub>MPP</sub> (A)	7.89	7.93	7.96	8.00	8.03
Open Circuit Voltage - V <sub>OC</sub> (V)	41.1	41.4	41.5	41.6	41.6
Short Circuit Current - I <sub>SC</sub> (A)	8.46	8.47	8.50	8.52	8.55

Values at standard test conditions (STC: air mass AM 1.5, irradiance 10.75 W/sq ft (1000 W/m<sup>2</sup>), temperature 77°F (25°C), based on a production spread with a tolerance of P<sub>MAX</sub>, V<sub>OC</sub> & I<sub>SC</sub> ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m<sup>2</sup>, temperature 68°F (20°C), windspeed 3.3 ft/s (1 m/s)). \*Where xxx indicates the nominal power class (P<sub>MAX</sub>) at STC above.

### CERTIFICATIONS

IEC 61215:2016, IEC 61730:2016, UL 1703, UL 61730	
IEC 62804	PID
IEC 61701	Salt Mist
IEC 62716	Ammonia Resistance
UL 1703	Fire Type Class 2
IEC 62782	Dynamic Mechanical Load
IEC 61215-2:2016	Hailstone (35mm)
AS4040.2 NCC 2016	Cyclic Wind Load
ISO14001:2004, ISO 9001:2015, OHSAS 18001:2007, IEC 62941	



### WARRANTY

	Standard	REC ProTrust
Installed by an REC Certified Solar Professional	No	Yes Yes
System Size	All	≤25 kW 25-500 kW
Product Warranty (yrs)	20	25 25
Power Warranty (yrs)	25	25 25
Labor Warranty (yrs)	0	25 10
Power in Year 1	98%	98% 98%
Annual Degradation	0.25%	0.25% 0.25%
Power in Year 25	92%	92% 92%

See warranty documents for details. Conditions apply.

### MAXIMUM RATINGS

Operational temperature:	-40 ... +85°C
Maximum system voltage:	1000 V
Design load (+): snow	4666 Pa (97.5 lbs/sq ft)*
Maximum test load (+):	7000 Pa (146 lbs/sq ft)*
Design load (-): wind	2666 Pa (55.6 lbs/sq ft)*
Maximum test load (-):	4000 Pa (83.5 lbs/sq ft)*
Max series fuse rating:	25 A
Max reverse current:	25 A

\* Calculated using a safety factor of 1.5

\* See installation manual for mounting instructions

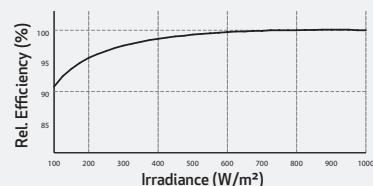
### TEMPERATURE RATINGS\*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P <sub>MAX</sub> :	-0.26 %/°C
Temperature coefficient of V <sub>OC</sub> :	-0.24 %/°C
Temperature coefficient of I <sub>SC</sub> :	0.04 %/°C

\* The temperature coefficients stated are linear values

### LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power in order to facilitate global energy transitions. Committed to quality and innovation, REC offers photovoltaic modules with leading high quality, backed by an exceptional low warranty claims rate of less than 100ppm. Founded in Norway in 1996, REC employs 2,000 people and has an annual solar panel capacity of 1.8 GW. With over 10 GW installed worldwide, REC is empowering more than 16 million people with clean solar energy. REC Group is a Bluestar Elken company with headquarters in Norway, operational headquarters in Singapore, and regional bases in North America, Europe, and Asia-Pacific.

**REC**  
www.recgroup.com



# FLASHKIT PRO



**FLASHKIT PRO** is the complete attachment solution for composition shingle roofs. Featuring Unirac's patented **SHED & SEAL** technology, a weather proof system which provides the ultimate protection against roof leaks. Kitted in 10 packs for maximum convenience, flashings and hardware are available in Mill or Dark finishes. With **FLASHKIT pro**, you have everything you need for a quick, professional installation.



## TRUSTED WATER SEAL FLASHINGS

FEATURING **SHED & SEAL** TECHNOLOGY



## YOUR COMPLETE SOLUTION

Flashings, lags, continuous slot L-Feet and hardware



## CONVENIENT 10 PACKS

Packaged for speed and ease of handling

## THE COMPLETE ROOF ATTACHMENT SOLUTION

FOR QUESTIONS OR CUSTOMER SERVICE VISIT [UNIRAC.COM](http://UNIRAC.COM) OR CALL (505) 248-2702

# FLASHKIT PRO

## INSTALLATION GUIDE



**FLASHKIT PRO IS THE COMPLETE FLASHING AND ATTACHMENT SOLUTION FOR COMPOSITION ROOFS.**

**STEP 1**



INSTALL FLASHKIT PRO FLASHING

**STEP 2**



INSTALL L-FOOT

**STEP 3**



ATTACH L-FOOT TO RAIL

### PRE-INSTALL

- Locate roof rafters and snap chalk lines to mark the installation point for each roof attachment.
- Drill a 7/32" pilot hole at each roof attachment. Fill each pilot hole with sealant.

### STEP 1 INSTALL FLASHKIT PRO FLASHING

- Add a U-shaped bead of roof sealant to the underside of the flashing with the open side of the U pointing down the roof slope. Slide the aluminum flashing underneath the row of shingles directly up slope from the pilot hole as shown. Align the indicator marks on the lower end of the flashing with the chalk lines on the roof to center the raised hole in the flashing over the pilot hole in the roof. When installed correctly, the flashing will extend under the two courses of shingles above the pilot hole.

### STEP 2 INSTALL L-FOOT

- Fasten L-foot and Flashing into place by passing the included lag bolt and pre-installed stainless steel-backed EPDM washer through the L-foot EPDM grommet, and the raised hole in the flashing, into the pilot hole in the roof rafter.

- Drive the lag bolt down until the L-foot is held firmly in place. It is normal for the EPDM on the underside of the stainless steel backed EPDM washer to compress and expand beyond the outside edge of the steel washer when the proper torque is applied.

**TIP:**

- Use caution to avoid over-torqueing the lag bolt if using an impact driver.
- Repeat Steps 1 and 2 at each roof attachment point.

### STEP 3 ATTACH L-FOOT TO RAIL

- Insert the included 3/8"-16 T-bolts into the lower slot on the Rail (sold separately), spacing the bolts to match the spacing between the roof attachments.
- Position the Rail against the L-Foot and insert the threaded end of the T-Bolt through the continuous slot in the L-Foot. Apply anti-seize to bolt threads to prevent galling of the T-bolt and included 3/8" serrated flange nut. Place the 3/8" flange nut on the T-bolt and finger tighten. Repeat STEP 3 until all L-Foots are secured to the Rail with a T-bolt. Adjust the level and height of the Rail and torque each bolt to 30ft-lbs.

# FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT [UNIRAC.COM](http://UNIRAC.COM) OR CALL (505) 248-2702

# Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.



## Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

## Productive and Reliable

- Optimized for high powered 60-cell/120 half-cell and 72-cell/144 half-cell\* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

## Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

\* The IQ 7+ Micro is required to support 72-cell/144 half-cell modules.



# Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US	IQ7PLUS-72-2-US		
Commonly used module pairings <sup>1</sup>	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell/120 half-cell PV modules only		60-cell/120 half-cell and 72-cell/144 half-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Oversupply class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range <sup>2</sup>	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit <sup>3</sup>	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Oversupply class AC port	III		III	
AC port backfeed current	18 mA		18 mA	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	
EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>.

2. Nominal voltage range can be extended beyond nominal if required by the utility.

3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit [enphase.com](http://enphase.com)





## 22kW GENERAC GENERATOR

A permanently installed Generac home backup generator protects your home automatically. It runs on natural gas or liquid propane (LP) fuel, and sits outside just like a central air conditioning unit. A home backup generator delivers power directly to your home's electrical system, backing up your entire home or just the most essential items.

GENERAC  
GENERATOR  
**\$12,000**

\*LENDER FINANCE FEES APPLY TO ALL ADDERS. FEE NOT ACCOUNTED FOR IN THE PRICE LISTED ON THIS SHEET



## TESLA POWERWALL

Powerwall is a home battery designed to store energy from solar or the grid, so you can use it anytime you want—at night or during an outage.

**POWERWALL  
\$10,000**

**GATEWAY  
\$1,500**

\* EACH TESLA POWERWALL INSTALL REQUIRES MAXIMUM OF ONE (1) TESLA GATEWAY. ADDED AS ADDER SEPERATELY FROM THE BATTERY/ BATTERIES

\* BATTERY MUST BE SOLD ON A SUNNOVA BATTERY ONLY LOAN

\*LENDER FINANCE FEES APPLY TO ALL ADDERS. FINANCE FEE NOT ACCOUNTED FOR IN THE PRICES LISTED ON THIS SHEET

# POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.



## PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy	14 kWh
Usable Energy	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10 s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10 s, off-grid/backup)	7.2 kVA (charge and discharge)
Maximum Supply Fault Current	10 kA
Maximum Output Fault Current	32 A
Overcurrent Protection Device	30 A
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/- 1.0 adjustable
Power Factor Range (full-rated power)	+/- 0.85
Internal Battery DC Voltage	50 V
Round Trip Efficiency <sup>1,3</sup>	90%
Warranty	10 years

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

<sup>2</sup>In Backup mode, grid charge power is limited to 3.3 kW.

<sup>3</sup>AC to battery to AC, at beginning of life.

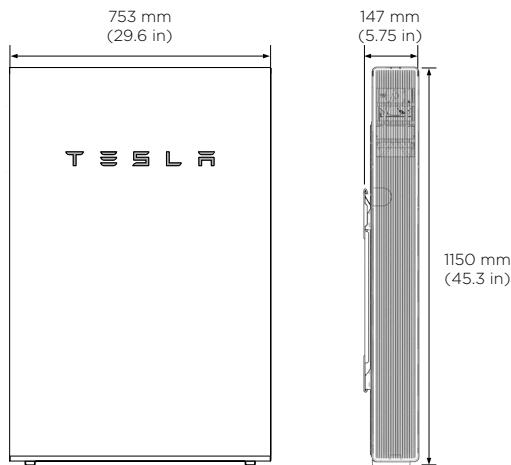
## COMPLIANCE INFORMATION

Certifications	UL 1642, UL 1741, UL 1973, UL 9540, IEEE 1547, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

## MECHANICAL SPECIFICATIONS

Dimensions <sup>1</sup>	1150 mm x 755 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)
Weight <sup>1</sup>	114 kg (251.3 lbs)
Mounting options	Floor or wall mount

<sup>1</sup>Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.

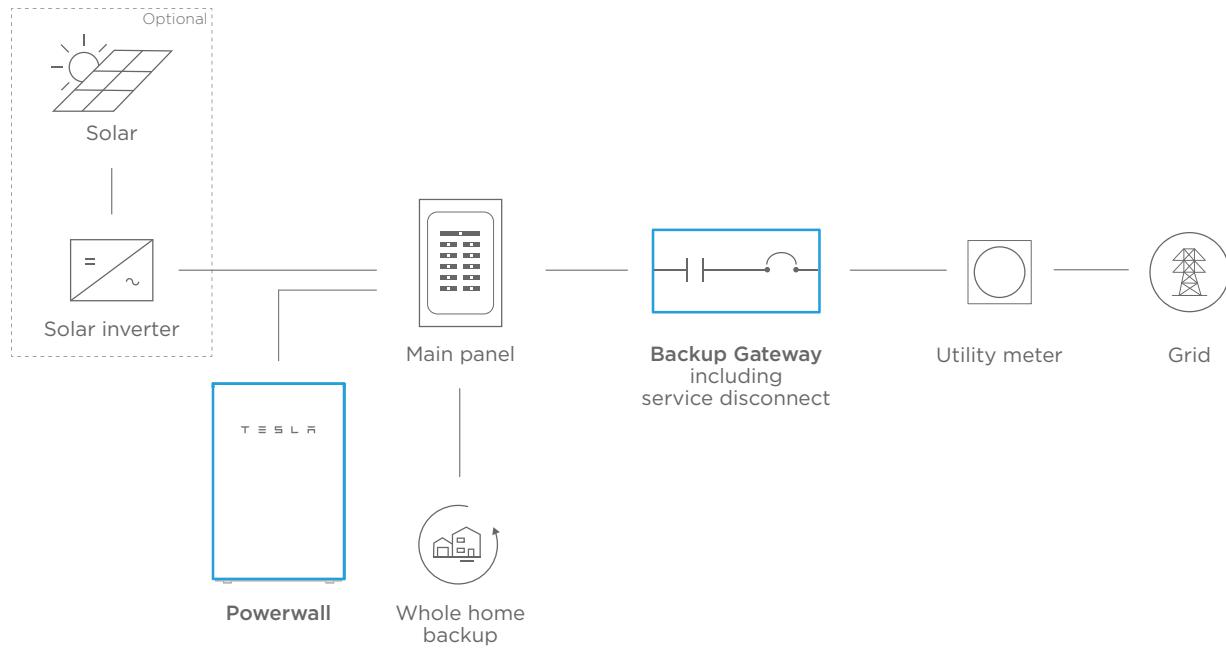


## ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA at 30°C (86°F)

## TYPICAL SYSTEM LAYOUTS

### WHOLE HOME BACKUP



### PARTIAL HOME BACKUP

