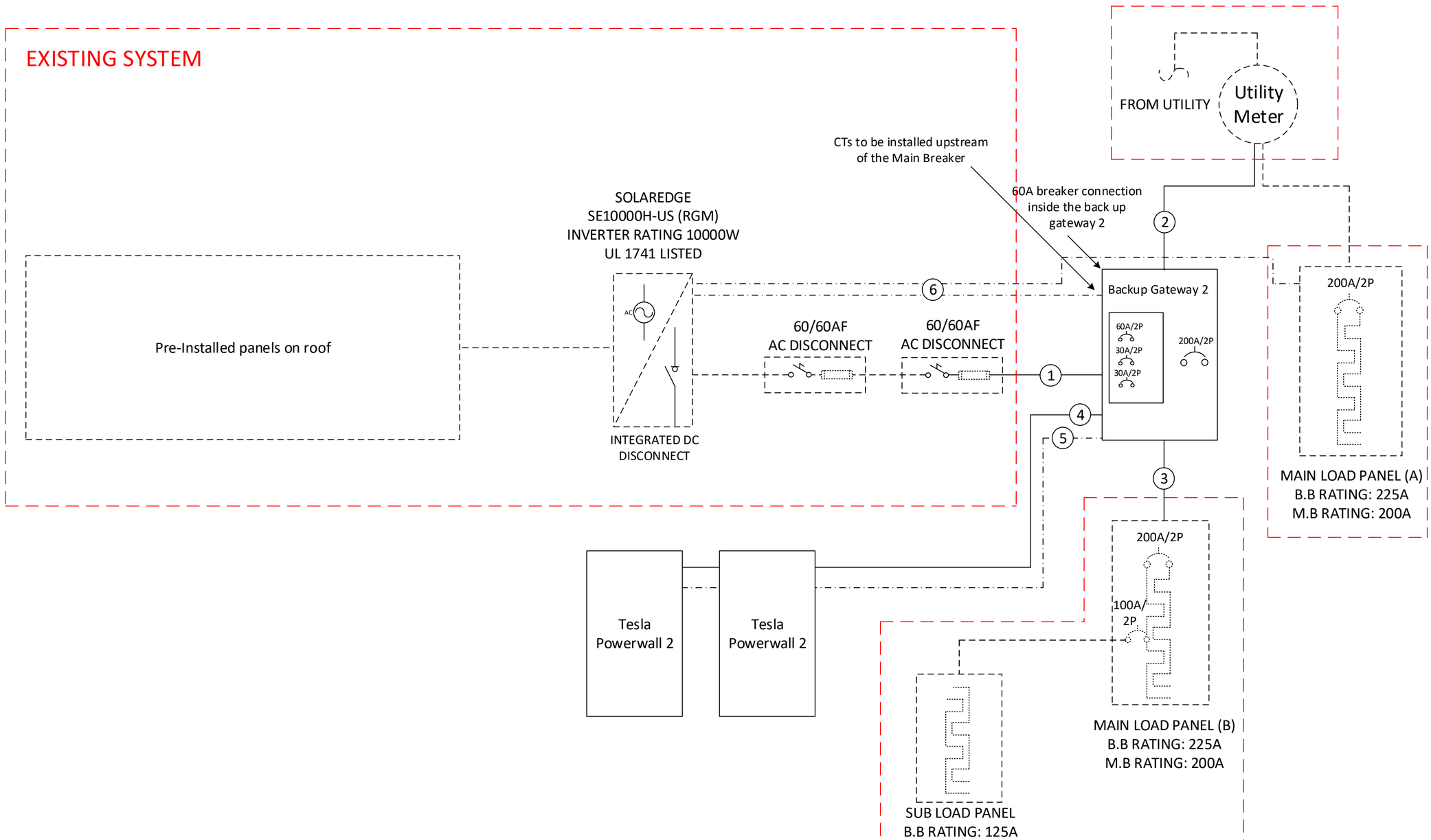

Note: Loads more than 176A LRA will be non-backed up by Tesla and will be managed manually.
Note: HVAC Unit #1 and Freezer #3 will move to the panel (B) which will be backed by the batteries.

System Size:

- (01) SOLAREDGE SE10000H-US
- Inverter Output: 42A max @ 240 VAC
- 10.0 kVA AC output max

- Rapid Shutdown is included in the Inverters, refer to Inverter attached datasheets.
- The load center / disconnect will be visible, lockable accessible to utility linesmen and will be properly labelled as per NEC requirements. It will be located on the exterior wall of the building, next to the utility meter.

Sr.No	#Wire	Conduit Size	Ground Wire	Amperage
1	3 x #6 THHN Cu	3/4” EMT	#8 Green	60
2	3 x #3/0 THHN Cu	2” PVC		200
3	3 x #3/0 THHN Cu	2” PVC	#4 Green	200
4	6 x #10 THHN Cu	3/4” EMT	2 x #10 Green	30
5	4-conductor shielded (1 twisted pair) 16 AWG	3/4” EMT		
6	Shielded CAT5e			

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Customer Signature:

Sheet Name:

Electrical One Line Diagram

JOB NUMBER:

23-189-KG

Date:

04/25/2023

Revision:

A

Sheet Size:

ANSI C
17" X 22"

Sheet Number:

PV1

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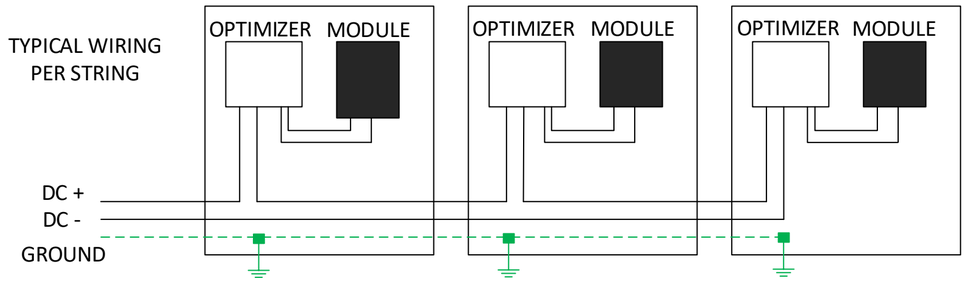

Line 1	
Line 2	
Neutral	
Ground	

Note: The arrow on the 225A CTs should face the grid.
Note: Dip switch settings are factory set to address 1
Note: Accepted Breakers for Gateway: Eaton CSR or BW (100-200A)
Note: Loads more than 176A LRA will be non-backed up by Tesla and will be managed manually.

Note: The arrow on the Backup Gateway 2 CTs should face the grid.
Note: Backup Gateway 2 CT-1 should be installed on Line 1.

Note: Fault current is smaller than 10kAIC
Note: There will be partial consumption

EXISTING SYSTEM

SOLAREDGE SE10000H-US (RGM)
120/240V
UL1741 LISTED
10000 W

Communication board
Wifi Plugin

FROM PV ARRAY
STRING 1
STRING 2
STRING 3

SAFETY SWITCH
DC CONNECTION
Consumption Meter
AC CONNECTION
Dip Switch
L1 L2 N

60/60AF AC DISCONNECT
60/60AF AC DISCONNECT

EQUIPMENT GROUNDING

GROUND BONDED AT DISCONEECT AND PASSES THROUGH WHILE NEUTRAL PASSES THROUGH UNBONDED

BACKUP GATEWAY2
Auxiliary Meter Y
CT 1 CT 2 CT 3
12V GND CN+ CN-
Lugs for Non Back up Loads
Aux CT-1
60A/2P
30A/2P
30A/2P
Ethernet Port
AUX
COMMS
Jump
Meter X Supply CTs
200A/2P
Neutral-Ground Bonding Strap
Back up Loads & Generation

FROM UTILITY GRID
kWh
UTILITY METER
GROUNDING ROD TO BE INSTALLED BY 8MSOLAR
PRE-INSTALLED GROUNDING ROD

Consumption CTs
200A/2P
MAIN LOAD PANEL (A)
B.B. RATING: 225A
B.B. RATING: 200A

200A/2P
100A/2P
MAIN LOAD PANEL (B)
B.B. RATING: 225A
B.B. RATING: 200A

DIP SWITCH CONFIGURATION

■	0	OFF
□	1	ON

L2
N
L1
G
12Ω Resister
12V GND CN+ CN-
Communication cable sheild/drain wire to be connected on ground lug

TESLA POWERWALL 2

TESLA POWERWALL 2

SUB LOAD PANEL
B.B RATING: 125A

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Detailed Electrical Diagram

JOB NUMBER:

23-189-KG

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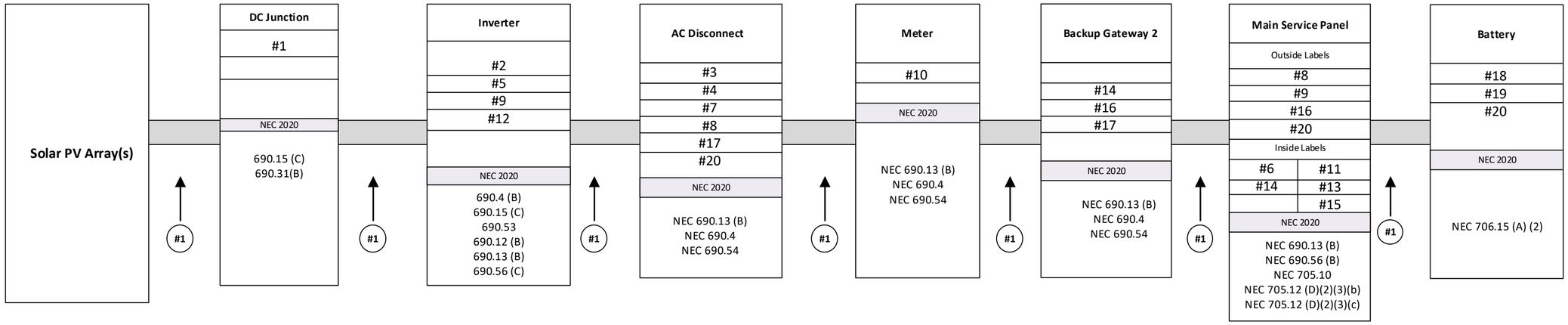

LABELING AND WARNING SIGNS: NEC 2020

A. PURPOSE
PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL.

B. MAIN SERVICE DISCONNECT:

1. RESIDENTIAL BUILDINGS- THE MARKING MAY BE PLACED WITHIN THE MAIN SERVICE DISCONNECT. THE MARKING SHALL BE PLACED ON THE OUTSIDE COVER IF THE MAIN SERVICE DISCONNECT IS OPERABLE WITH THE SERVICE PANEL CLOSED.

2. COMMERCIAL BUILDINGS- THE MARKINGS SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECTCLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED

3. MARKINGS, VERBIAGE, FORMAT AND TYPE OF MATERIAL

a. VERBIAGE: CAUTION; SOLAR ELECTRIC SYSTEM CONNECTED
b. FORMAT:

(1) WHITE LETTERING ON A RED BACKGROUND
(2) MINIMUM 3/8 INCH LETTER HEIGHT
(3) ALL LETTERS SHALL BE CAPITALIZED
(4) ARIAL OR SIMILAR FONT, NON-BOLD

c. MATERIAL:

(1) REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969) AS STANDARD FOR WEATHER RATING): DURABLE ADHESIVE MATERIALS MEET THIS REQUIREMENT.

C. MARKING REQUIREMENTS ON DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, DC COMBINERS AND JUNCTION BOXES;

1. MARKING: PLACEMENT, VERBIAGE, FORMAT AND TYPE OF MATERIAL.

a. PLACEMENT: MARKINGS SHALL BE PLACED EVERY 10 (TEN) FEET ON ALL INTERIOR AND EXTERIOR DC CONDUITS, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES, AT TURNS ABOVE AND/OR BELOW PENETRATIONS, ALL DC COMBINERS AND JUNCTION BOXES.
b. VERBIAGE: CAUTION SOLAR CIRCUIT
c. THE FORMAT AND TYPE OF MATERIAL SHALL ADHERE TO SECTION B-3.B & C ABOVE

D. INVERTERS ARE NOT REQUIRED TO HAVE CAUTION MARKINGS

#1
WARNING:PHOTOVOLATIC POWER SOURCE

#2
PHOTOVOLATIC
DC DISCONNECT

#3
PHOTOVOLATIC
AC DISCONNECT

#4
RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

#5
MAXIMUM VOLTAGE 400Vdc
MAX. RATED CIRCUIT CURRENT 23.4Adc
OF THE CHARGE CONTOLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

#6
PHOTOVOLTIVC POWER SOURCE
OPERATING AC VOLTAGE 240 V
MAXIMUN OPERATING AC OUTPUT CURRENT 60 A

#7
AC DISCONNECT
PHOTOVOLTAIC SYSTEM POWER SOURCE
RATED AC OUTPUT CURRENT 60 AMPS
NOMINAL OPERATING AC VOLTAGE 240 VOLTS

#8
WARNING
ELECTRIC SHOCK HAZARD
TERMINAL ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

#9
WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

#10
WARNING
THREE POWER SOURCES
SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

#11
WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

#12
WARNING
BIPOLAR PHOTOVOLTAIC ARRAY
DISCONNECT OF NEUTRAL GROUNDED CONDUCTORS MAY RESULT IN OVERVOLTAGE ON ARRAY OR INVERTER

#13
WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

#14
WARNING
SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFEED

#15
SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY

#16
SOLAR AC DISCONNECT LOCATED AT WEST SIDE WALL OF THE HOUSE BESIDE THE UTILITY METER

#17
SERIVCE DISCONNECT LOCATED IN THE BACKUP GATEWAY2 PANEL

#18
BATTERY

#19
MAIN BATTERY SYSTEM DISCONNECT

#20
BATTERY DISCONNECT LOCATED IN THE BACKUP GATEWAY 2 PANEL

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PV Labels

JOB NUMBER:

23-189-KG

Date:	**Revision:**
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Sheet Size: ANSI C 17" X 22"	**Sheet Number:** PV 3

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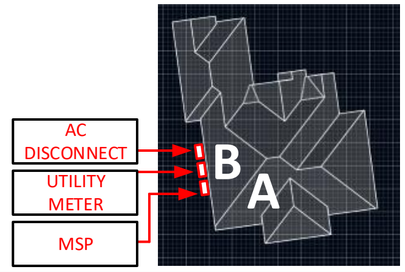
PV Installation Professional
Ali Buttar
PVIP #031310-32

ROOF DESCRIPTION			
ROOFS	PITCH	AZIMUTH	
A	45°	172°	
B	45°	262°	



TESLA
- 02 x Powerwall & Ancillary Equipment
- 02 x US AC Goodie Bag
- 01 x Powerwall Mounting Kit
- 01 x Powerwall Stacking Kit
- 02 x 02" Conduit Hub Kit
- 02 x 1.25" Conduit Hub Kit
- 01 x Backup GateWay 2
- 01 x Internal Panelboard Kit

ELECTRICAL ITEMS
- 01 x BW2200: Gateway Main Breaker-Eaton BW2200
- 01 x BR260: Eaton BR 60/2
- 02 x BR230: Eaton BR 30/2

PV LABELS		
Sr No	Code	Qty
01	02-314	12
02	03-301	01
03	03-302	01
04	02-316	02
05	03-308	01
06	03-390	01
07	03-306	01
08	05-215	02
09	05-211	02
10	03-230	01
11	05-372	01
12	05-103	01
13	05-216	01
14	05-342	01
15	07-111	01
16	8M-001	02
17	8M-002	02
18	03-395	01
19	04-304	01
20	8M-004	03

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Bill of Material

JOB NUMBER:

23-189-KG

Date:	**Revision:**
04/25/2023	A

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ANSI C 17" X 22"	PV 4

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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[1]	14 kWh
Usable Energy[1]	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10s, off-grid/backup)	7.2 kVA (charge and discharge)
Load Start Capability	88 - 106 A LRA[2]
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	90%[1,3]
Warranty	10 years

[1]Values provided for 25°C (77°F), 3.3 kW charge/discharge power.
[2]Load start capability may vary.
[3]AC to battery to AC, at beginning of life.

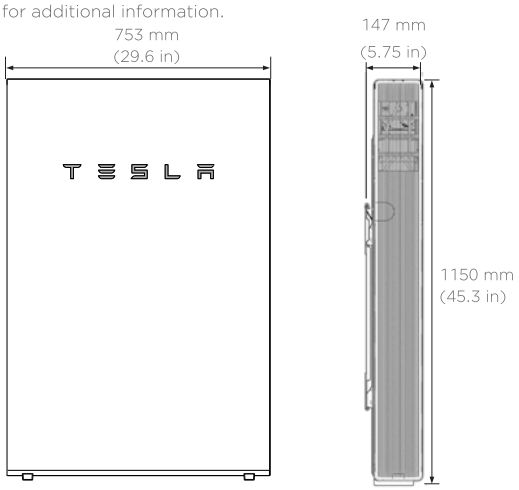
COMPLIANCE INFORMATION

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)
Fire Testing	Meets the unit level performance criteria of UL 9540A

MECHANICAL SPECIFICATIONS

Dimensions	1150 mm x 753 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)[4]
Weight	114 kg (251.3 lbs)[4]
Mounting options	Floor or wall mount

[4]Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.



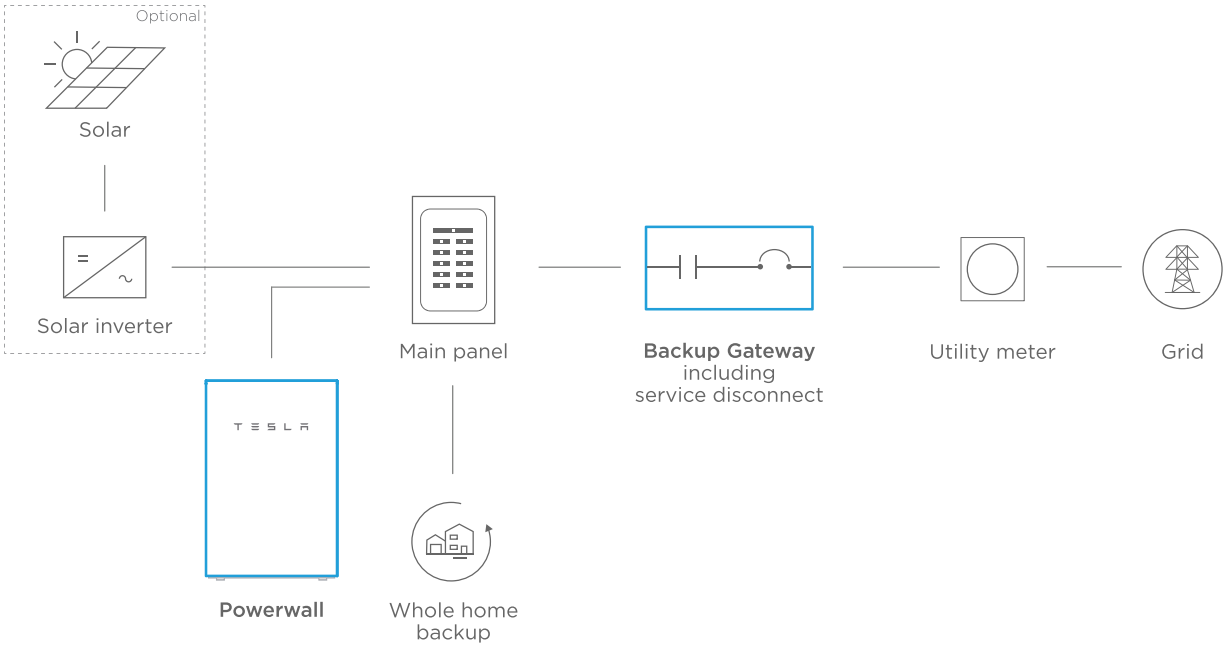
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)[5]
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)

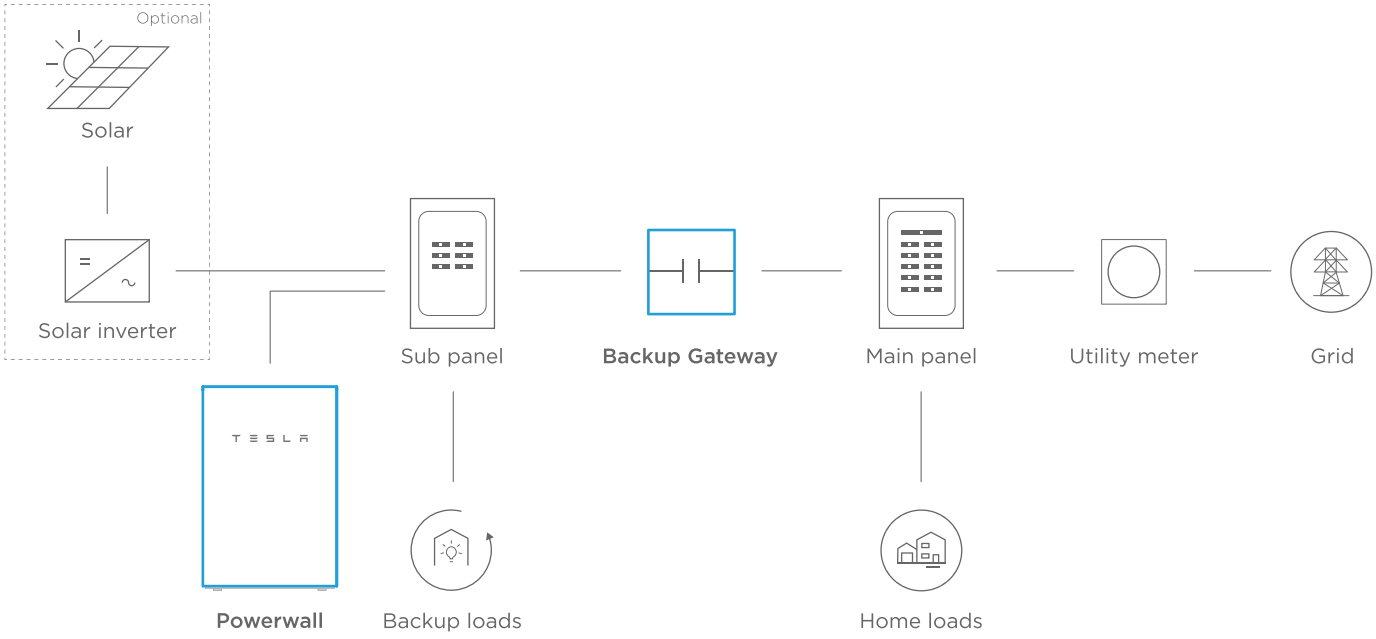
[5]Performance may be de-rated at operating temperatures below 10°C (50°F) or greater than 43°C (109°F).

TYPICAL SYSTEM LAYOUTS

WHOLE HOME BACKUP



PARTIAL HOME BACKUP



POWERWALL
Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.

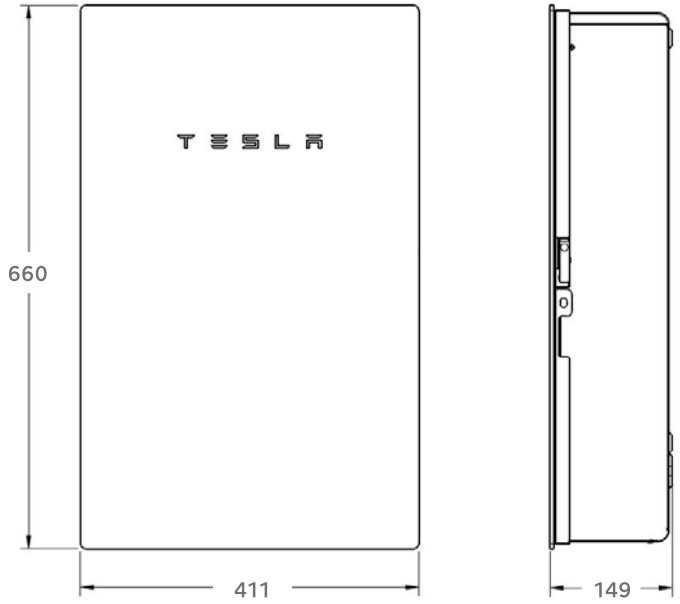
PERFORMANCE SPECIFICATIONS

Model Number	1232100-xx-y
AC Voltage (Nominal)	120/240V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Current Rating	200 A
Maximum Input Short Circuit Current	10 kA[1]
Overcurrent Protection Device	100-200A; Service Entrance Rated[1]
Overvoltage Category	Category IV
AC Meter	Revenue accurate (+/– 0.2 %)
Primary Connectivity	Ethernet, Wi-Fi
Secondary Connectivity	Cellular (3G, LTE/4G)[2]
User Interface	Tesla App
Operating Modes	Support for solar self-consumption, time-based control, and backup
Backup Transition	Automatic disconnect for seamless backup
Modularity	Supports up to 10 AC-coupled Powerwalls
Optional Internal Panelboard	200A 6-space / 12 circuit Eaton BR Circuit Breakers
Warranty	10 years

[1] When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 22kA symmetrical amperes.
[2] The customer is expected to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in)
Weight	20.4 kg (45 lb)
Mounting options	Wall mount, Semi-flush mount



COMPLIANCE INFORMATION

Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS CSA 22.2 0.19, CSA 22.2 205
Emissions	FCC Part 15, ICES 003

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R