ABBREVIATIONS

A AMPERE AC ALTERNATING CURRENT BLDG BUILDING CONC CONCRETE DC DIRECT CURRENT EGC EQUIPMENT GROUNDING CONDUCTOR (E) EXISTING EMT ELECTRICAL METALLIC TUBING FSB FIRE SET-BACK GALV GALVANIZED GEC GROUNDING ELECTRODE CONDUCTOR GND GROUND HDG HOT DIPPED GALVANIZED I CURRENT Imp CURRENT AT MAX POWER Isc SHORT CIRCUIT CURRENT kVA KILOVOLT AMPERE kW KILOWATT LBW LOAD BEARING WALL MIN MINIMUM (N) NEW NEUT NEUTRAL NTS NOT TO SCALE OC ON CENTER PL PROPERTY LINE POI POINT OF INTERCONNECTION PV PHOTOVOLTAIC SCH SCHEDULE S STAINLESS STEEL STC STANDARD TESTING CONDITIONS TYP TYPICAL UPS UNINTERRUPTIBLE POWER SUPPLY V VOLT Vmp VOLTAGE AT MAX POWER Voc VOLTAGE AT OPEN CIRCUIT W WATT 3R NEMA 3R, RAINTIGHT

ELECTRICAL NOTES

1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER.
2. A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3.
3. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARDS PER ART. 690.17.
4. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5.
5. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B).
6. DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER ART. 690.31(E).
7. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.

JURISDICTION NOTES

SOLAR ROOF WILL BE INSTALLED OVER BARE SOLID OR CLOSELY FITTED SHEATHING, AS FOLLOWS:
•DOC PS-1 COMPLIANT / EXTERIOR GRADE PLYWOOD: MINIMUM 15/32"(11.9 MM) THICK OR
•DOC POS-2 OSB
SHEATHING: MINIMUM 7/16"THICK (11.1 MM) OR
•CLOSELY-FITTED SHEATHING BOARDS: MINIMUM OF 3/4"(19.1 MM) THICK

SOLAR ROOF CAN ALSO BE INSTALLED OVER COMPATIBLE EXISTING ROOFS, AS FOLLOWS:
•THREE-TAB COMPOSITION SHINGLE, SINGLE LAYER
•ARCHITECTURAL COMPOSITION SHINGLE, SINGLE LAYER

SOLAR ROOF WILL NOT BE INSTALLED OVER RAISED PRESIDENTIAL-STYLE COMPOSITION SHINGLE, ROOFS WITH MORE THAN ONE LAYER OF COMPOSITION SHINGLE, OR EXISTING NON-COMPOSITION SHINGLE ROOF TYPES LIKE TILED ROOFS.

LICENSE

AHJ: Columbia County

UTILITY: Clay Electric Cooperative

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2020 FLORIDA BUILDING CODE (7TH EDITION), FLORIDA FIRE PREVENTION CODE (7TH EDITION).
2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2017 NATIONAL ELECTRIC CODE.

VICINITY MAP

INDEX

REV BY DATE COMMENTS

REV A	NAME	DATE	COMMENTS
*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*

JOB NUMBER: JB-326252 00
MOUNTING SYSTEM: TESLA SOLAR ROOF
MODULES: (232) 1547745-80-A
INVERTER: Multiple Inverters

CUSTOMER:
Peggy Holman
108 SE Turtle Glen
Lake City, FL 32025

(352) 514-7041

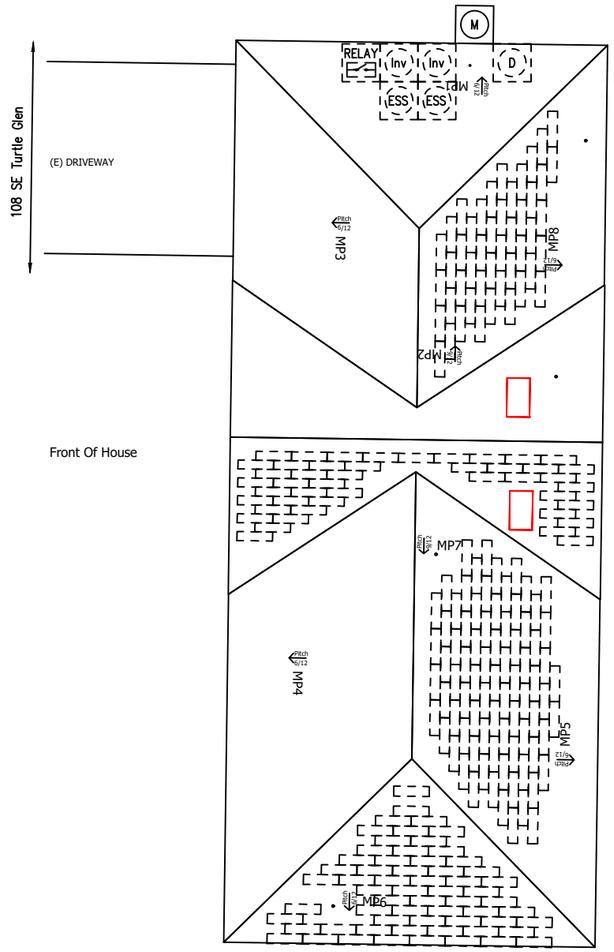
DESCRIPTION:
16.704 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: COVER SHEET

DESIGN: Gerardo Gomez

SHEET: 1 REV: a DATE: 11/4/2021

TESLA



MP6	PITCH: 26° (6:12) ARRAY PITCH: 26° (6:12) AZIMUTH: 181 ARRAY AZIMUTH: 181 MATERIAL: Solar Roof STORY: Two
MP5	PITCH: 26° (6:12) ARRAY PITCH: 26° (6:12) AZIMUTH: 91 ARRAY AZIMUTH: 91 MATERIAL: Solar Roof STORY: Two
MP8	PITCH: 26° (6:12) ARRAY PITCH: 26° (6:12) AZIMUTH: 91 ARRAY AZIMUTH: 91 MATERIAL: Solar Roof STORY: Two
MP7	PITCH: 36° (9:12) ARRAY PITCH: 36° (9:12) AZIMUTH: 181 ARRAY AZIMUTH: 181 MATERIAL: Solar Roof STORY: Two

LEGEND

- (M) (E) UTILITY METER & WARNING LABEL
- (Inv) INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
- (DC) DC DISCONNECT & WARNING LABELS
- (AC) AC DISCONNECT & WARNING LABELS
- (B) DC JUNCTION/COMBINER BOX & LABELS
- (D) DISTRIBUTION PANEL & LABELS
- (LC) LOAD CENTER & WARNING LABELS
- (M) DEDICATED PV SYSTEM METER
- (RSD) RAPID SHUTDOWN
- STANDOFF LOCATIONS
- CONDUIT RUN ON EXTERIOR
- CONDUIT RUN ON INTERIOR
- GATE/FENCE
- HEAT PRODUCING VENTS ARE RED
- INTERIOR EQUIPMENT IS DASHED

SITE PLAN

Scale:1/16" = 1'

01' 16' 32'

N W E S

JOB NUMBER: JB–326252 00

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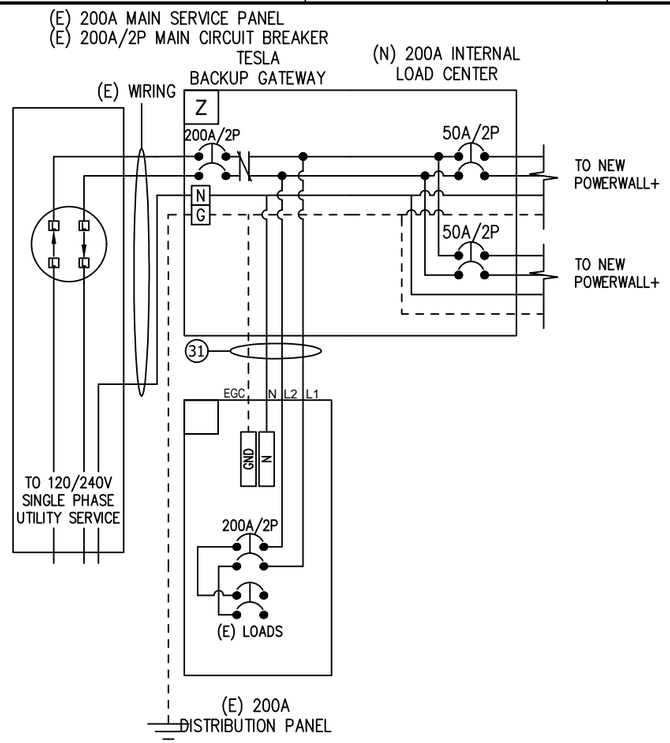
DESIGN: Gerardo Gomez

SHEET: 2 REV: a DATE: 11/4/2021

TESLA

	MAIN PANEL SPECS	GENERAL NOTES			LICENSE
	Panel Number: NoLabel Meter Number: 156218341 Overhead Service Entrance	*			



POI
- (1) Ground Rod 5/8" x 8', Copper

Z
- (1) Tesla # 1232100-00-G Back-up Gateway 2.0 NA for AC PW 2.0
- (1) Eaton # BW2200 200A Main Circuit Breaker; 2-Pole, 240V, 10kAIC
- (2) CUTLER-HAMMER # BR250 Breaker; 50A/2P, 2 Spaces
- (1) Panelboard Accessory Kit for GW 2.0 NA 200A, 6sp/12cir, 120/240V, 1PH

Y
- (1) Eaton M22-PVT-K01 Emergency Stop Button

31 — 2" Conduit
- (3) AWG #2/0, THWN-2, Black
- (1) AWG #6, THWN-2, Green
- (1) Conduit 2" PVC; Schedule 80

AC

JOB NUMBER: JB-326252 00

MOUNTING SYSTEM: TESLA SOLAR ROOF

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DESCRIPTION:
16.704 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: THREE LINE DIAGRAM

DESIGN: Gerardo Gomez

SHEET: 3 REV: a DATE: 11/4/2021

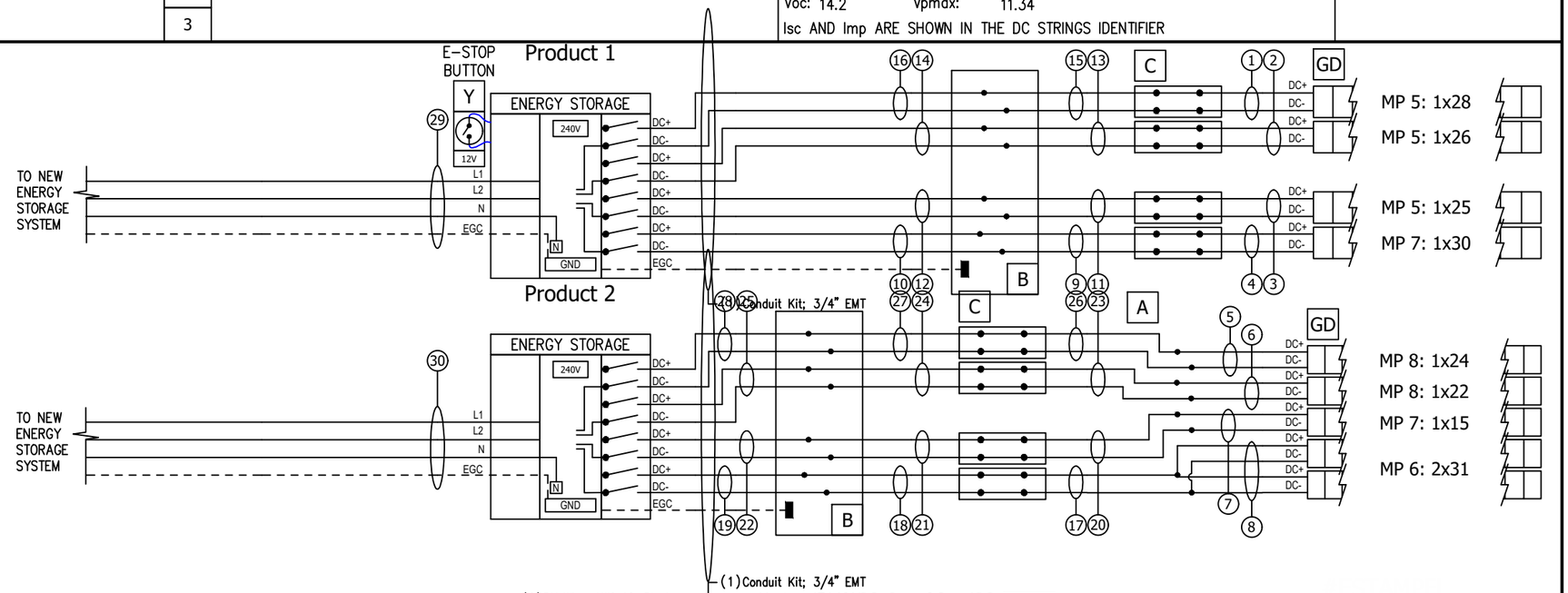
TESLA

MAIN PANEL SPECS	GENERAL NOTES	PRODUCT SPECS	MODULE SPECS	LICENSE
Panel Number: Meter Number: Overhead Service Entrance	Inv 1: DC Ungrounded Inv 2: DC Ungrounded	1 – (1) Powerwall+ Tesla Inc [240V] # 1850000-00-B 7.6 kW / 13.5 kWh 2 – (1) Powerwall+ Tesla Inc [240V] # 1850000-10-B 7.6 kW / 13.5 kWh 3	– (232) 1547745-80-A TESLA SR72T1; 71.67 W, 65.40 W PTC, Textured, 2.7mm Voc: 14.2 Vpmax: 11.34 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	

Up to (3) Powerwall+ units can be wired to the emergency stop button (e-stop) for rapid shutdown initiation. Low voltage wiring of connection(s) to additional units is not shown.

CONDUCTORS RATED TO 100A OR GREATER MAY BE INSTALLED WITH ALUMINUM RATED EQUIVALENT WIRE SIZE AND THE RESULTING CONDUIT SIZE. REFERENCE THE 'WIRE & CONDUIT SIZE EQUIVALENCE TABLE' ATTACHED TO THE PLANSET.

CONDUIT MATERIAL TYPE TBD IN FIELD TO 2017 NEC STANDARDS



Voc* = MAX VOC AT MIN TEMP

W — (1)Eaton M22-PVT-K01 Emergency Stop Button

AC

29	10ft	(1)AWG #8, THWN-2, Black (1)AWG #8, THWN-2, Red (1)AWG #8, THWN-2, Green EGC –(1)Conduit Kit; 3/4" EMT	–(1)AWG #8, THWN-2, White	Vmp =240 VAC	Imp=32	AAC
30	10ft	(1)AWG #8, THWN-2, Black (1)AWG #8, THWN-2, Red (1)AWG #8, THWN-2, Green EGC –(1)Conduit Kit; 3/4" EMT	–(1)AWG #8, THWN-2, White	Vmp =240 VAC	Imp=32	AAC

19	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 474.16 VDC Vmp = 351.54 VDC	Isc = 13.6 Imp= 12.6	ADC ADC
20	50ft	(2)PV Wire, AWG 10, Black		Voc* = 229.43 VDC Vmp = 170.1 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
21	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 229.43 VDC Vmp = 170.1 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
22	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 229.43 VDC Vmp = 170.1 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
23	50ft	(2)PV Wire, AWG 10, Black		Voc* = 336.5 VDC Vmp = 249.48 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
24	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 336.5 VDC Vmp = 249.48 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
25	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 336.5 VDC Vmp = 249.48 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
26	50ft	(2)PV Wire, AWG 10, Black		Voc* = 367.09 VDC Vmp = 272.16 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
27	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 367.09 VDC Vmp = 272.16 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
28	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 367.09 VDC Vmp = 272.16 VDC	Isc = 6.8 Imp= 6.3	ADC ADC

(1)Conduit Kit; 3/4" EMT

8	80ft	(4)PV Wire, AWG 10, Black		Voc* = 474.16 VDC Vmp = 351.54 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
9	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 458.86 VDC Vmp = 340.2 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
10	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 458.86 VDC Vmp = 340.2 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
11	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 382.38 VDC Vmp = 283.5 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
12	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 382.38 VDC Vmp = 283.5 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
13	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 397.68 VDC Vmp = 294.84 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
14	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 397.68 VDC Vmp = 294.84 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
15	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 428.27 VDC Vmp = 317.52 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
16	50ft	(1)AWG #10, THWN-2, Black (1)AWG #10, THWN-2, White (1)AWG #10, THWN-2, Green EGC	–(1)Conduit Kit; 3/4" EMT	Voc* = 428.27 VDC Vmp = 317.52 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
17	50ft	(2)PV Wire, AWG 10, Black		Voc* = 474.16 VDC Vmp = 351.54 VDC	Isc = 13.6 Imp= 12.6	ADC ADC
18	50ft	(2)PV Wire, AWG 10, Black (1)Conduit; 3/4" LFMC		Voc* = 474.16 VDC Vmp = 351.54 VDC	Isc = 13.6 Imp= 12.6	ADC ADC

DC

1	70ft	(2)PV Wire, AWG 10, Black		Voc* = 428.27 VDC Vmp = 317.52 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
2	65ft	(2)PV Wire, AWG 10, Black		Voc* = 397.68 VDC Vmp = 294.84 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
3	65ft	(2)PV Wire, AWG 10, Black		Voc* = 382.38 VDC Vmp = 283.5 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
4	75ft	(2)PV Wire, AWG 10, Black		Voc* = 458.86 VDC Vmp = 340.2 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
5	60ft	(2)PV Wire, AWG 10, Black		Voc* = 367.09 VDC Vmp = 272.16 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
6	55ft	(2)PV Wire, AWG 10, Black		Voc* = 336.5 VDC Vmp = 249.48 VDC	Isc = 6.8 Imp= 6.3	ADC ADC
7	40ft	(2)PV Wire, AWG 10, Black		Voc* = 229.43 VDC Vmp = 170.1 VDC	Isc = 6.8 Imp= 6.3	ADC ADC

B	(8)Junction Box Metal; 6"x6"x4" , Box w/ cover; Nema 3R
C	(8)Pass Through Box
GD	Please see MCI wiring detail page for more information
A	(2)EE-000550-001 MC4 Y-Connector, Receptacle –(2)EE-000550-000 MC4 Y-Connector, Plug
PV	(28)Tesla MCI, 600V, 13A

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PAGE NAME: THREE LINE DIAGRAM

DESIGN: Gerardo Gomez

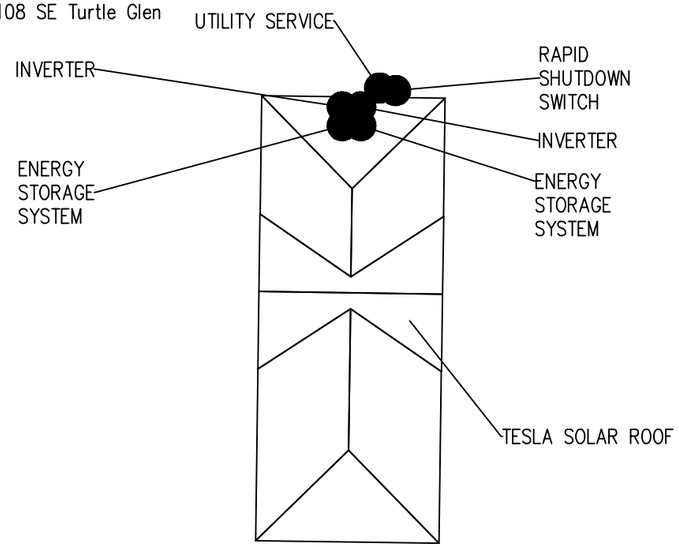
SHEET:	REV:	DATE:
4	a	11/4/2021

TESLA

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

Address: 108 SE Turtle Glen



OPERATING VOLTAGE = 240

JOB NUMBER: JB–326252 00

MOUNTING SYSTEM: TESLA SOLAR ROOF

MODULES: (232) 1547745–80–A

INVERTER: Multiple Inverters

CUSTOMER:
Peggy Holman
108 SE Turtle Glen
Lake City, FL 32025

(352) 514–7041

DESCRIPTION:
16.704 KW PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: SITE PLAN PLACARD

DESIGN: Gerardo Gomez

SHEET: 5 REV: a DATE: 11/4/2021

TESLA

WARNING: PHOTOVOLTAIC POWER SOURCE

Label Location:
(C)(CB)(JB)
Per Code:
NEC 690.31.G.3

PHOTOVOLTAIC DC DISCONNECT

Label Location:
(DC) (INV)
Per Code:
NEC 690.13.B

MAXIMUM POWER-POINT CURRENT (Imp) ____ A
MAXIMUM POWER-POINT VOLTAGE (Vmp) ____ V
MAXIMUM SYSTEM VOLTAGE (Voc) ____ V
SHORT-CIRCUIT CURRENT (Isc) ____ A

Label Location:
(DC) (INV)
Per Code:
NEC 690.53

WARNING

ELECTRIC SHOCK HAZARD
IF A GROUND FAULT IS INDICATED
NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUNDED AND ENERGIZED

Label Location:
(DC) (INV)
Per Code:
690.41.B

WARNING

ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

DC VOLTAGE IS
ALWAYS PRESENT WHEN
SOLAR MODULES ARE
EXPOSED TO SUNLIGHT

Label Location:
(DC) (CB)
Per Code:
CEC 690.13.B

PHOTOVOLTAIC AC DISCONNECT

Label Location:
(AC) (POI)
Per Code:
NEC 690.13.B

MAXIMUM AC OPERATING CURRENT ____ A
MAXIMUM AC OPERATING VOLTAGE ____ V

Label Location:
(AC) (POI)
Per Code:
NEC 690.54

WARNING

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

Label Location:
(AC)(POI)
Per Code:
NEC 690.13.B

WARNING

INVERTER OUTPUT
CONNECTION
DO NOT RELOCATE
THIS OVERCURRENT
DEVICE

Label Location:
(POI)
Per Code:
NEC 705.12.B.2.3.b

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH RAPID
SHUTDOWN

Label Location:
(INV)
Per Code:
NEC 690.56.C.3

CAUTION

PHOTOVOLTAIC SYSTEM
CIRCUIT IS BACKFED

Label Location:
(D) (POI)
Per Code:
NEC 690.64.B.4

CAUTION

DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC SYSTEM

Label Location:
(POI)
Per Code:
NEC 705.12.B.3

PHOTOVOLTAIC POINT OF INTERCONNECTION

WARNING: ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION. FOR SERVICE DE-ENERGIZE BOTH SOURCE AND MAIN BREAKER.

PV POWER SOURCE

MAXIMUM AC OPERATING CURRENT ____ A
MAXIMUM AC OPERATING VOLTAGE ____ V

Label Location:
(POI)
Per Code:
CEC 690.13.B

WARNING

ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNGROUNDED AND
MAY BE ENERGIZED

Label Location:
(DC) (INV)

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.

Label Location:
SolarEdge and,Delta M-Series and,Telsa Inverter
Per Code:
690.56(C)(1)(a)

(AC): AC Disconnect
(C): Conduit
(CB): Combiner Box
(D): Distribution Panel
(DC): DC Disconnect
(IC): Interior Run Conduit
(INV): Inverter With Integrated DC Disconnect
(LC): Load Center
(M): Utility Meter
(POI): Point of Interconnection

Label Set

BACKUP LOAD CENTER

Label Location:
(BLC)
Per Code:
NEC 408.4

CAUTION
DO NOT ADD NEW LOADS

Label Location:
(BLC)
Per Code:
NEC 220

CAUTION
THIS PANEL HAS SPLICED FEED-THROUGH CONDUCTORS.
LOCATION OF DISCONNECT AT ENERGY STORAGE BACKUP LOAD PANEL

Label Location:
(MSP)
Per Code:
NEC 312.8.A(3)

CAUTION
DUAL POWER SOURCE
SECOND SOURCE IS
ENERGY STORAGE SYSTEM

Label Location:
(MSP)
Per Code:
NEC 705.12(B)(3)

ENERGY STORAGE SYSTEM ON SITE
LOCATED WITHIN LINE OF SIGHT

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED ON ADJACENT WALL

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED ON OPPOSITE WALL

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED INSIDE

Label Location:
(MSP)
Per Code:

CAUTION
TRI POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
THIRD SOURCE IS ENERGY STORAGE SYSTEM

Label Location:
(MSP)
Per Code:
NEC 705.12(B)(3)

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVER CURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

Label Location:
(MSP)
Per Code:
NEC 705.12.B.2.3.c

NOMINAL ESS VOLTAGE: 120/240V
MAX AVAILABLE SHORT-CIRCUIT FROM ESS: 32A
ARC FAULT CLEARING TIME FROM ESS: 67ms
DATE OF CALCULATION:

Label Location:
(MSP)
Per Code:
Per 706.7(D) label to be marked in field

(AC): AC Disconnect
(BLC): Backup Load Center
(MSP): Main Service Panel

	Label Set		

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.

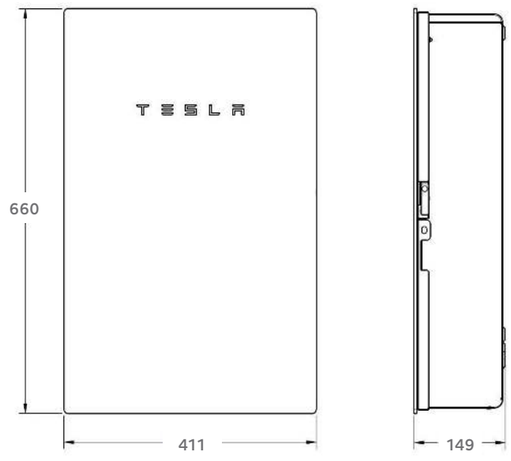
PERFORMANCE SPECIFICATIONS

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

MCI WIRING DETAIL

GENERAL NOTES

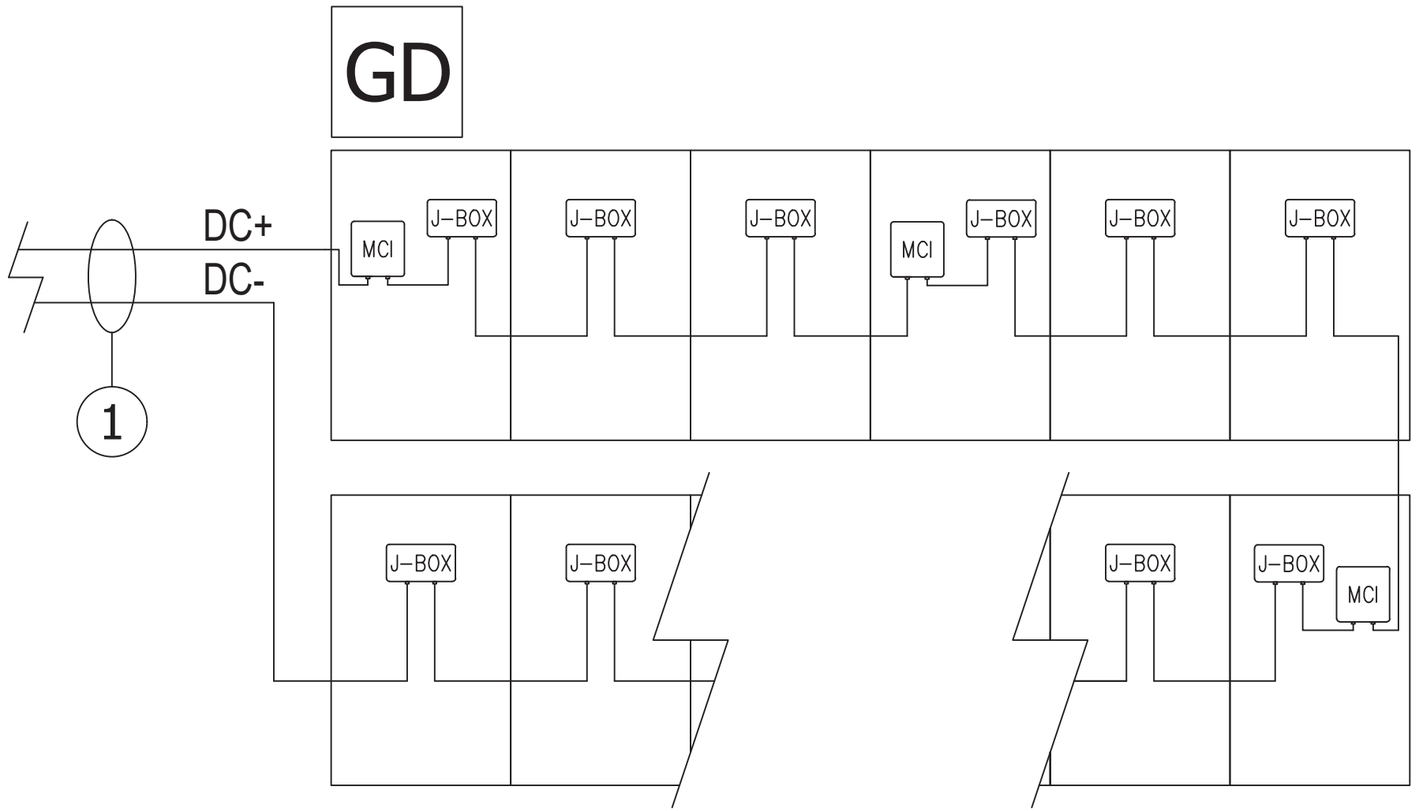
- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

RETROFIT PV MODULES

- MCIS ARE LOCATED AT ROOF LEVEL, JUST UNDER THE PV MODULES IN ACCORDANCE WITH 690.12 REQUIREMENTS
- THE QUANTITY OF MCIS PER STRING IS DETERMINED BY STRING LENGTH
  - NUMBER OF MODULES BETWEEN MCI UNITS = 0–3
  - MAXIMUM NUMBER OF MODULES PER MCI UNIT = 3
  - MINIMUM NUMBER MCI UNITS = MODULE COUNT/3

*Exception: Tesla (Longi) modules installed in locations where the max Voc for 3 modules at low design temperature exceeds 165V shall be limited to 2 modules between MCIs.

PLEASE REFER TO MCI CUTSHEET AND PVRSA INSERT FOR MORE INFORMATION



1 — (2) AWG, PV Wire, 600V, Black

DC

MCI WIRING DETAIL

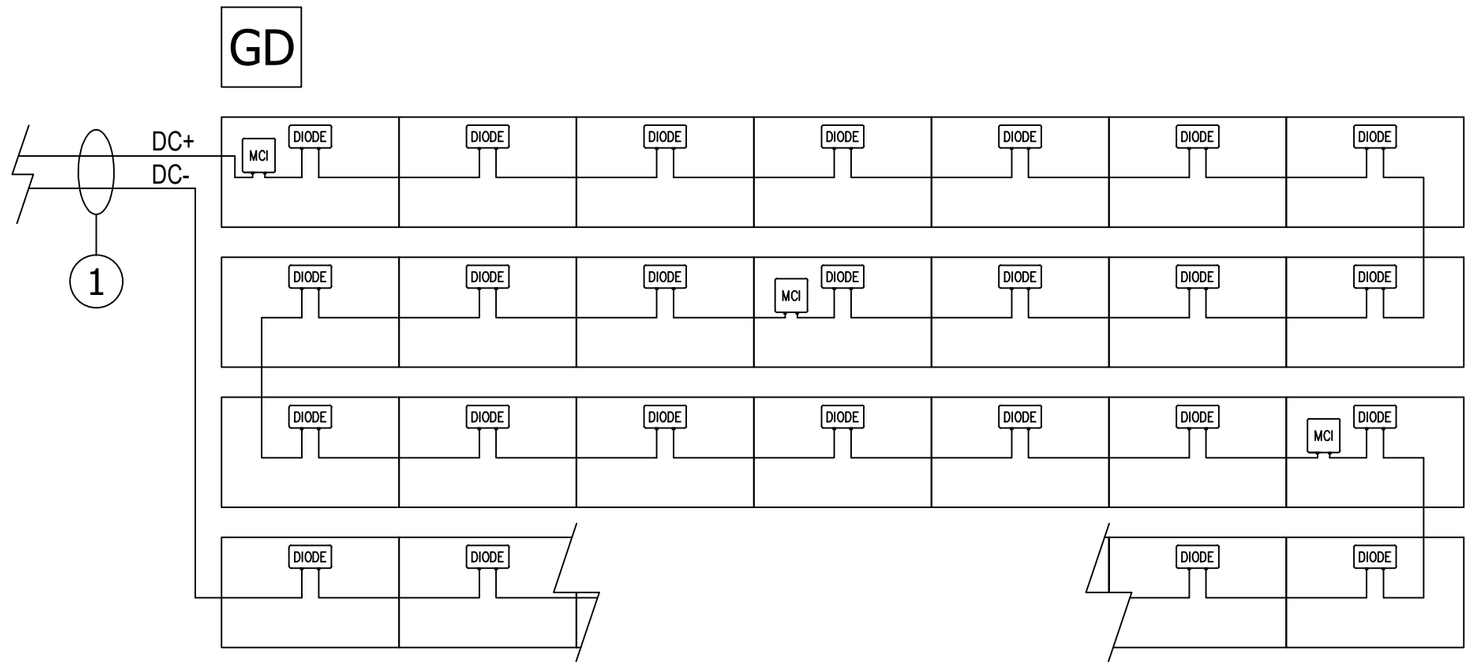
GENERAL NOTES

- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

SOLAR ROOF TILES

- MCIS ARE LOCATED AT DECK LEVEL, JUST UNDER THE TILES IN ACCORDANCE WITH 690.12 REQUIREMENTS
- THE QUANTITY OF MCIS PER STRING IS DETERMINED BY STRING LENGTH
  - NUMBER OF TILES BETWEEN MCI UNITS = 0–10
  - MAXIMUM NUMBER OF TILES PER MCI UNIT = 10
  - MINIMUM NUMBER MCI UNITS = TILE COUNT/10

PLEASE REFER TO MCI CUTSHEET AND PVRSA INSERT FOR MORE INFORMATION



1 — (2)AWG, PV Wire, 600V, Black

DC

POWERWALL+

Powerwall+ is an integrated solar battery system that stores energy from solar production. Its integrated design and streamlined installation allow for simple connection to any home, and improved surge power capability brings whole home backup in a smaller package. Smart system controls enable owners to customize system behavior to suit their renewable energy needs.

KEY FEATURES

- Integrated battery, inverter, and system controller for a more compact install
- A suite of application modes, including self-powered, time-based control, and backup modes
- Wi-Fi, Ethernet, and LTE connectivity with easy over-the-air updates

PHOTOVOLTAIC (PV) AND BATTERY ENERGY STORAGE SYSTEM (BESS) SPECIFICATIONS

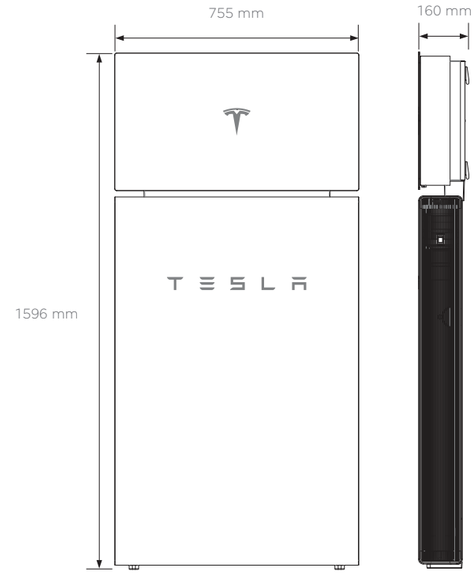
Model Number	1850000-xx-y
Nominal Battery Energy	13.5 kWh
Nominal Grid Voltage (Input / Output)	120/240 VAC
Grid Voltage Range	211.2 - 264 VAC
Frequency	60 Hz
Phase	240 VAC: 2W+N+GND
Maximum Continuous Power On-Grid	7.6 kW full sun / 5.8 kW no sun[1]
Maximum Continuous Power Off-Grid	9.6 kW full sun / 7 kW no sun[1]
Peak Off-Grid Power (10 s)	22 kW full sun / 10 kW no sun[1]
Maximum Continuous Current On-Grid	32 A output
Maximum Continuous Current Off-Grid	40 A output
Load Start Capability	118 A LRA
PV Maximum Input Voltage	600 VDC
PV DC Input Voltage Range	60 - 550 VDC
PV DC MPPT Voltage Range	60 - 480 VDC
MPPTs	4
Input Connectors per MPPT	1-2-1-2
Maximum Current per MPPT (I_{mp})	13 A
Maximum Short Circuit Current per MPPT (I_{sc})	15 A
Allowable DC/AC Ratio	1.7
Overcurrent Protection Device	50 A breaker
Maximum Supply Fault Current	10 kA
Output Power Factor Rating	+/– 0.9 to 1
Round Trip Efficiency	90%[2]
Solar Generation CEC Efficiency	97.5% at 208 V 98.0% at 240 V
Customer Interface	Tesla Mobile App
Internet Connectivity	Wi-Fi, Ethernet, Cellular LTE/4G)[3]
PV AC Metering	Revenue grade (+/-0.5%)
Protections	Integrated arc fault circuit interrupter (AFCI), PV Rapid Shutdown
Warranty	10 years

COMPLIANCE INFORMATION

PV Certifications	UL 1699B, UL 1741, UL 3741, UL 1741 SA, UL 1998 (US), IEEE 1547, IEEE 1547.1
Battery Energy Storage System Certifications	UL 1642, UL 1741, UL 1741 PCS, UL 1741 SA, UL 1973, UL 9540, IEEE 1547, IEEE 1547.1, UN 38.3
Grid Connection	United States
Emissions	FCC Part 15 Class B
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions	1596 x 755 x 160 mm (62.8 x 29.7 x 6.3 in)
Total Weight	140 kg (310 lb)[4]
Battery Assembly	118 kg (261 lb)
Solar Assembly	22 kg (49 lb)
Mounting options	Floor or wall mount



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	Type 3R
Noise Level @ 1 m	< 40 db(A) optimal, < 50 db(A) maximum

[1]Values provided for 25°C (77°F).

[2]AC to battery to AC, at beginning of life.

[3]Cellular connectivity subject to network service coverage and signal strength.

[4]The total weight does not include the Powerwall+ bracket, which weighs an additional 9 kg (20 lb).

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

SOLAR SHUTDOWN DEVICE

The Tesla Solar Shutdown Device is part of the PV system rapid shutdown (RSD) function in accordance with Article 690 of the applicable NEC. When paired with Powerwall+, solar array shutdown is initiated by turning the Powerwall+ Enable switch off, or by pushing the System Shutdown Switch if one is present.

ELECTRICAL SPECIFICATIONS

Nominal Input DC Current Rating (I_{MP})	12 A
Maximum Input Short Circuit Current (I_{SC})	15 A
Maximum System Voltage	600 V DC

RSD MODULE PERFORMANCE

Maximum Number of Devices per String	5
Control	Power Line Excitation
Passive State	Normally open
Maximum Power Consumption	7 W
Warranty	25 years

COMPLIANCE INFORMATION

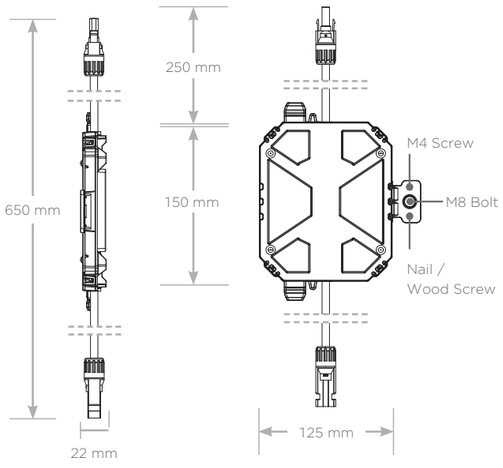
Certifications	UL 1741 PVRSE, UL 3741, PVRSA (Photovoltaic Rapid Shutdown Array)
RSD Initiation Method	External System Shutdown Switch
Compatible Equipment	*See Compatibility Table below*

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Enclosure Rating	NEMA 4 / IP65

MECHANICAL SPECIFICATIONS

Electrical Connections	MC4 Connector
Housing	Plastic
Dimensions	125 mm x 150 mm x 22 mm (5 in x 6 in x 1 in)
Weight	350 g (0.77 lb)
Mounting Options	ZEP Home Run Clip M4 Screw (#10) M8 Bolt (5/16") Nail / Wood screw



UL 3741 PV HAZARD CONTROL (AND PVRSA) COMPATIBILITY

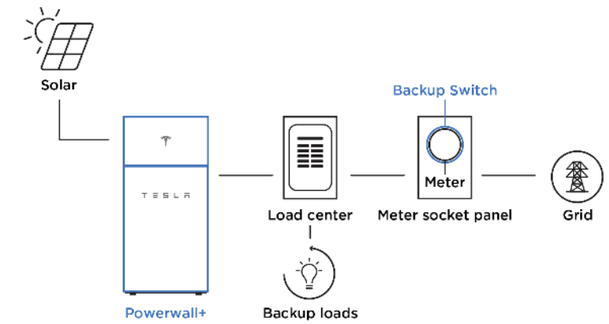
Tesla Solar Roof and Tesla/Zep ZS Arrays using the following modules are certified to UL 3741 and UL 1741 PVRSA when installed with the Powerwall+ and Solar Shutdown Devices. See the Powerwall+ Installation Manual for detailed instructions and for guidance on installing Powerwall+ and Solar Shutdown Devices with other modules.

Brand	Model	Required Solar Shutdown Devices
Tesla	Solar Roof V3	1 Solar Shutdown Device per 10 modules
Tesla	Tesla TxxxS (where xxx = 405 to 450 W, increments of 5)	1 Solar Shutdown Device per 3 modules[1]
Hanwha	Q.PEAK DUO BLK-G5	1 Solar Shutdown Device per 3 modules
Hanwha	Q.PEAK DUO BLK-G6+	1 Solar Shutdown Device per 3 modules

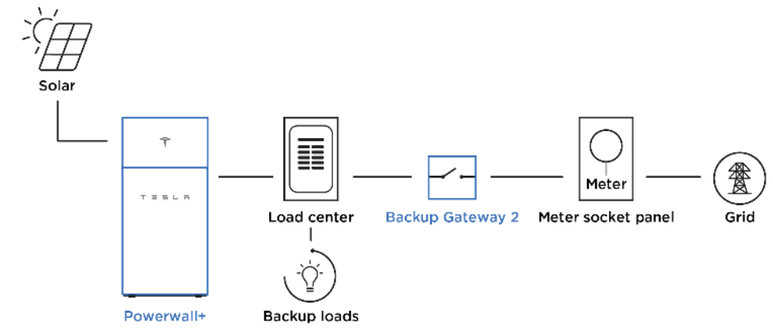
[1]**Exception**: Tesla solar modules installed in locations where the max Voc for three modules at low design temperatures exceeds 165 V shall be limited to two modules between MCIs.

SYSTEM LAYOUTS

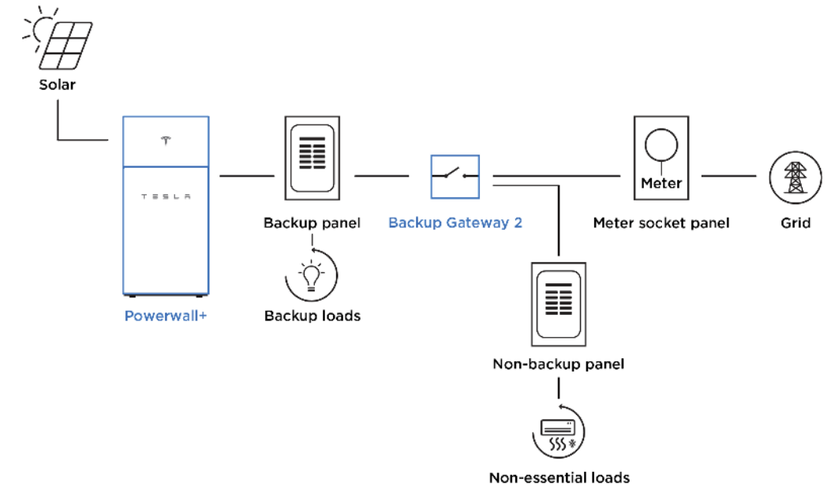
Powerwall+ with Backup Switch for Whole Home Backup



Powerwall+ with Backup Gateway 2 for Whole Home Backup



Powerwall+ with Backup Gateway 2 for Partial Home Backup



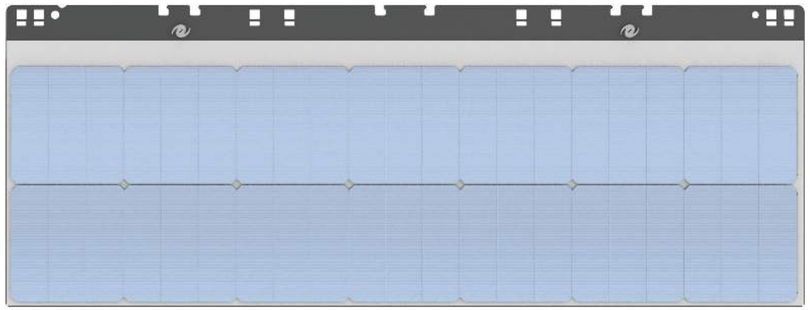
T E S L A

SOLAR ROOF
DATASHEET

FOR FULL TEAR-OFF AND OVERLAY INSTALLATIONS

14-CELL PV MODULE

MODEL #: SR72T1



ELECTRICAL SPECIFICATIONS

Maximum open circuit voltage rating of connected branch circuits per diode (at STC): 14.2 V
Maximum series fuse rating: 10 A
Maximum system voltage: 600 V

Irradiance (W/m²)	Temp. (Celsius)	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmax (W)
1000	25	14.20	11.34	6.80	6.32	71.67

These electrical characteristics are within ± 5% of the indicated values of Isc, Voc, and Pmax under standard test conditions (irradiance of 1000 W/m², AM 1.5 spectrum, and a cell temperature of 25 °C or 77 °F).

MECHANICAL SPECIFICATIONS

Dimensions: 430 mm x 1140 mm
Thickness: Appx. 5 mm module thickness with 35.3 mm maximum height from deck
Principal Materials: Glass, Polymers, Fiberglass and Silicon
Installed System Weight: Textured Glass: 15 kg/m² or 3.1 psf
(Installed weights include all components of system above roof sheathing).

ROOF PITCH RANGE

2:12 - 24:12
Certain features can be installed up to 62:12

CERTIFICATIONS

UL 61730 (UL Listed); UL 9703 (UL Listed); UL 1741 (UL Listed)
UL 790 Class A (ETL Listed); ASTM D3161 Class F (ETL Listed); TAS100 (ETL Listed)

SHEATHING SPECIFICATIONS

Solar Roof will be installed over bare solid or closely fitted sheathing, as follows:

- DOC PS-1 compliant / exterior grade plywood: minimum 15/32” (11.9 mm) thick or
- DOC POS-2 OSB sheathing: minimum 7/16” thick (11.1 mm) or
- Closely-fitted sheathing boards: minimum of 3/4” (19.1 mm) thick

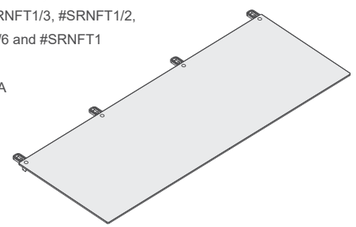
Solar Roof can also be installed over compatible existing roofs, as follows:

- Three-tab composition shingle, single layer
- Architectural composition shingle, single layer

Solar Roof will not be installed over raised presidential-style composition shingle, roofs with more than one layer of composition shingle, or existing non-composition shingle roof types like tiled roofs.

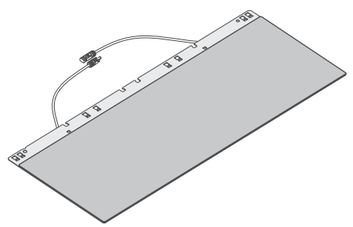
ROOFING MODULES, FULL AND PARTIAL

Model #SRNFT1/6, #SRNFT1/3, #SRNFT1/2, #SRNFT2/3, #SRNFT5/6 and #SRNFT1
Listed to UL 61730
Listed to UL 790 Class A
ASTM D3161 Class F
TAS100



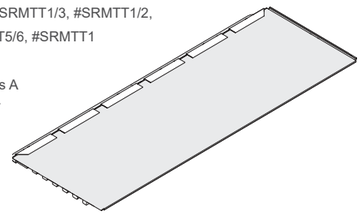
PV MODULE

Model #SR60T1
Listed to UL 61730
UL 790 Class A
ASTM D3161 Class F
TAS100



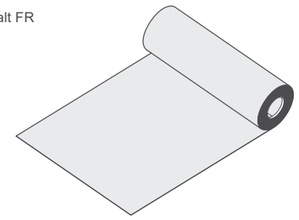
METAL TILES, FULL AND PARTIAL

Model #SRMTT1/6, #SRMTT1/3, #SRMTT1/2, #SRMTT2/3, #SRMTT5/6, #SRMTT1
Listed to UL 1897
Listed to UL 790 Class A
ASTM D3161 Class F
TAS100



UNDERLAYMENT

Model #SR-SAUL-1 or FT Cobalt FR
ASTM D1970/ICC AC48
ICC AC188
ASTM E108 Class -A



DIODE HARNESS

Model #SRDTH
UL 9703
Listed (ZKLA) "PV Wire"
Short and long lead variants interchangeable

PASS THROUGH BOX

Model #SRPTB-4
UL 1741, File #E318357