



MODULES										
REF.	QTY.	MAKE AND MODEL	P _{MAX}	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-31	31	JINKO JKM320M-60HL	320W	294W	10.15A	9.59A	40.9V	33.4V	-0.119V/°C (-0.29%/°C)	20A

INVERTERS										
REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	MAX OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1	1	SOLAR EDGE SE10000H-US	240V	NOT SOLIDLY GROUNDING	60A	10,000W	42.0A	27.0A	480V	99.0%

POWER OPTIMIZERS							
REF.	QTY.	MODEL	RATED INPUT POWER	MAX OUTPUT CURRENT	MAX INPUT ISC	MAX DC VOLTAGE	WEIGHTED EFFICIENCY
PO1-31	31	SOLAR EDGE P320	320W	15A	11.0A	48V	98.8%

DISCONNECTS				OCPDS				
REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE	REF.	QTY.	RATED CURRENT	MAX VOLTAGE
SW1	1	SQUARE D DU222RB OR EQUIV.	60A	240VAC	F1-2	2	60A	240VAC
SW2	1	SQUARE D D222NRB OR EQUIV.	60A	240VAC				

SYSTEM SUMMARY		
	STRING 1	STRING 2
OPTIMIZER MAX OUTPUT CURRENT	15A	15A
OPTIMIZERS IN SERIES	16	15
NOMINAL STRING VOLTAGE	400V	400V
ARRAY OPERATING CURRENT	12.8A	12A
ARRAY STC POWER	9,920W	
ARRAY PTC POWER	9,126W	
MAX AC CURRENT	42A	
MAX AC POWER OUTPUT	10,000W	
DERATED AC POWER OUTPUT	8,927W	

- ### NOTES
- 1 OPTIMIZERS PROVIDE RAPID SHUTDOWN FUNCTIONALITY REQUIRED BY NEC 690.12.
 - 2 THE SPECIFIED OPTIMIZER CAN BE SUBSTITUTED WITH A P370, P505, OR P340. THESE OPTIMIZERS HAVE AN INPUT VOLTAGE WINDOW WIDE ENOUGH TO ACCOMMODATE THE OUTPUT VOLTAGE RANGE OF THE MODULE AT THE DESIGN TEMPERATURES, HAVE A MAX INPUT CURRENT RATING THAT IS ABOVE THE MAX OUTPUT CURRENT OF THE MODULE, AND A MAX POWER INPUT THAT IS ABOVE THE RATED POWER OUTPUT OF THE MODULE.
 - 3 DC PV CONDUCTORS ARE NOT SOLIDLY-GROUNDING. NO DC PV CONDUCTOR SHALL BE WHITE- OR GRAY-COLORED
 - 4 ALL METAL ENCLOSURES, RACEWAYS, CABLES AND EXPOSED NONCURRENT-CARRYING METAL PARTS OF EQUIPMENT SHALL BE GROUNDING TO EARTH AS REQUIRED BY NEC 250.4(B) AND PART III OF NEC ARTICLE 250 AND EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45. THE GROUNDING ELECTRODE SYSTEM SHALL ADHERE TO 690.47(A) AND 250.169. THE DC GROUNDING ELECTRODE SHALL BE SIZED ACCORDING TO 250.166
 - 5 AN AUXILIARY GROUNDING ELECTRODE MAY BE INSTALLED IN COMPLIANCE WITH NEC SECTION 690.47(B).
 - 6 MAX DC VOLTAGE OF ARRAY FIXED BY THE INVERTER AT 400V REGARDLESS OF TEMPERATURE. THE MAX DC VOLTAGE OF THE MODULE AT -23°C IS EXPECTED TO BE 46.6V (-23°C - 25°C) X -0.119V/°C + 40.9V = 46.6V).
 - 7 PV SYSTEM DISCONNECT SHALL BE A VISIBLE KNIFE-BLADE TYPE DISCONNECT THAT IS ACCESSIBLE AND LOCKABLE BY THE UTILITY. THE DISCONNECT SHALL BE LOCATED WITHIN 10 FT OF UTILITY METER.
 - 8 POINT-OF-CONNECTION IS ON THE SUPPLY SIDE OF SERVICE DISCONNECT, INSIDE PANELBOARD ENCLOSURE USING UNUSED TERMINALS, TERMINALS THAT ARE SUITABLE FOR DOUBLE LUGGING, OR USING OTHER LOCALLY-APPROVED METHODS AND HARDWARE, IN COMPLIANCE WITH NEC 705.12(A).

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS														
ID	TYPICAL	CONDUCTOR	CONDUIT / CABLE	CURRENT-CARRYING CONDUCTORS IN CONDUIT / CABLE	OCPD	EGC	TEMP. CORR. FACTOR	FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERM. TEMP. RATING
1	1	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.76 (54°C)	1.0	15A	18.75A	55A	41.8A	75°C	50A
2	1	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.76 (54°C)	1.0	15A	18.75A	55A	41.8A	75°C	50A
3	1	2 AWG THWN-2, COPPER	1.25" DIA. LFNC	3	N/A	4 AWG THWN-2, COPPER	0.96 (32°C)	1.0	42A	52.5A	130A	124.8A	75°C	115A
4	1	2 AWG THWN-2, COPPER	1.25" DIA. EMT	3	N/A	4 AWG THWN-2, COPPER	0.96 (32°C)	1.0	42A	52.5A	130A	124.8A	75°C	115A
5	1	2 AWG THWN-2, COPPER	1.25" DIA. LFNC	3	60A X 2	n/a	0.96 (32°C)	1.0	42A	52.5A	130A	124.8A	75°C	115A

- ### GENERAL ELECTRICAL NOTES
- 1 UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
 - 2 MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
 - 3 CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.8 (D).
 - 4 CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.8 (C).

- ### GROUNDING NOTES
- 1 ALL EQUIPMENT SHALL BE PROPERLY GROUNDING PER THE REQUIREMENTS OF NEC ARTICLES 250 & 690
 - 2 PV MODULES SHALL BE GROUNDING TO MOUNTING RAILS USING MODULE LUGS OR RACKING INTEGRATED
 - 3 GROUNDING CLAMPS AS ALLOWED BY LOCAL JURISDICTION. ALL OTHER EXPOSED METAL PARTS SHALL BE GROUNDING USING UL-LISTED LAY-IN LUGS.
 - 4 INSTALLER SHALL CONFIRM THAT MOUNTING SYSTEM HAS BEEN EVALUATED FOR COMPLIANCE WITH UL 2703 "GROUNDING AND BONDING" WHEN USED WITH PROPOSED PV MODULE.
 - 5 ALL GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE
 - 6 IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE A VERIFIABLE GROUNDING ELECTRODE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
 - 7 AC SYSTEM GROUNDING ELECTRODE CONDUCTOR (GEC) SHALL BE A MINIMUM SIZE #8AWG WHEN INSULATED, #6AWG IF BARE WIRE.
 - 8 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC ARTICLE 690.45, AND BE A MINIMUM OF #10AWG WHEN NOT EXPOSED TO DAMAGE, AND #6AWG SHALL BE USED WHEN EXPOSED TO DAMAGE
 - 9 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLOR CODED GREEN, OR MARKED GREEN IF #4AWG OR LARGER

GRID-TIED SOLAR POWER SYSTEM

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FOUNTAIN, CO 80817

SINGLE-LINE DIAGRAM

PROJECT ID: 135050
DATE: 03/31/20
CREATED BY: K.G.
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REVISIONS	

1 SINGLE-LINE DIAGRAM
PV-3 SCALE: NTS

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