

## SYSTEM RATING

ROOF-1 3.600 kW DC STC  
 ROOF-2 2.400 kW DC STC

TOTAL: 6.000 kW DC STC

## EQUIPMENT SUMMARY

15 REC SOLAR REC400AA 400-W MODULES  
 1 SOLAREEDGE SE7600H-US INVERTER  
 15 SOLAREEDGE S440 OPTIMIZERS

### IronRidge Racking Components

Part	Quantity
14' Rails	12
17' Rails	-
End Caps	16
Splices	4
UFO Clamps	44
Stopper Sleeves	16
Flash Loc Attachments	36
Ground Lug Kit	4
30" Fixed Tilt Leg Kits	-
20" Fixed Tilt Leg Kits	-



April 4, 2023



DESIGN & DRAFTING BY:  
 DANA HAJEDEMOS



REVISIONS		
DESCRIPTION	DATE	REV
ORIGINAL	10/7/2022	A



PROJECT NAME

BAHR, PAOLO  
 1820 NORTH TEJON STREET  
 COLORADO SPRINGS, CO, 80907

SHEET NAME

COVER

SHEET SIZE

11" x 17"

SHEET NUMBER

PV-1

## SHEET INDEX

PV-1 COVER  
 PV-2 SITE PLAN  
 PV-2.1 EQUIPMENT LAYOUT  
 S-1 STRUCTURAL SHEET  
 PV-3 MOUNTING DETAIL  
 PV-3.1 MOUNTING DETAIL  
 PV-3.2 MOUNTING DETAIL  
 PV-4 SPEC SHEETS  
 PV-5 SPEC SHEETS  
 PV-6 SPEC SHEETS  
 PV-7 PV METER SPEC SHEET  
 E-1 ELECTRICAL DIAGRAM  
 E-2 SIGNAGE

## GOVERNING CODES

2020 NATIONAL ELECTRICAL CODE  
 UNDERWRITERS LABORATORIES (UL) STANDARDS  
 UL 1703 FOR MODULES, UL 1741 FOR INVERTERS  
 2015 IRC

AERIAL VIEW

SITE PLAN

- (15) REC SOLAR REC400AA 400-W MODULES TOTAL, 6.000 kW DC STC
- (1) SOLAREEDGE SE7600H-US INVERTER, TOTAL 7.600 kW AC
- (15) SOLAREEDGE S440 OPTIMIZERS

SINGLE STORY ACCESS

FLUSH MOUNTED ROOF ARRAYS: COMP SHINGLE ROOFING  
 ROOF/ARRAY #1 - 23°Pitch, 90°Azimuth - (9) MODULES  
 ROOF/ARRAY #2 - 23°Pitch, 270°Azimuth - (6) MODULES

DRAWING SCALE: 3/32"=1'-0"



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SHEET NAME

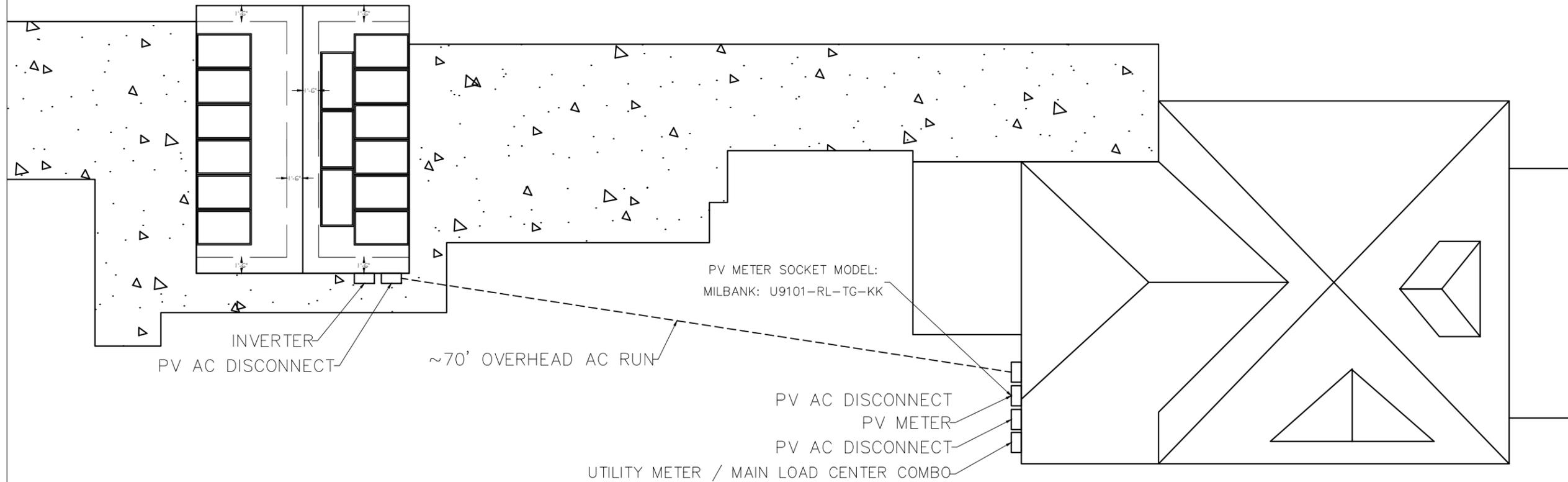
SITE MAP

SHEET SIZE

11" x 17"

SHEET NUMBER

PV-2



CONSTRUCTION SUMMARY

ROOF/ARRAY 1 & 2 – 23° PITCH, 270°, 90° AZIMUTH

UNKNOWN SYP 2x6 RAFTERS @ 24" O.C. SPACING SUPPORTING  
COMP SHINGLE ROOFING

BUILDING IMPORTANCE CATEGORY II  
WIND EXPOSURE CATEGORY C

ASCE 7-10 DESIGN WINDSPEED: 130 MPH, 3 SECOND GUST  
SNOW LOAD 30 PSF

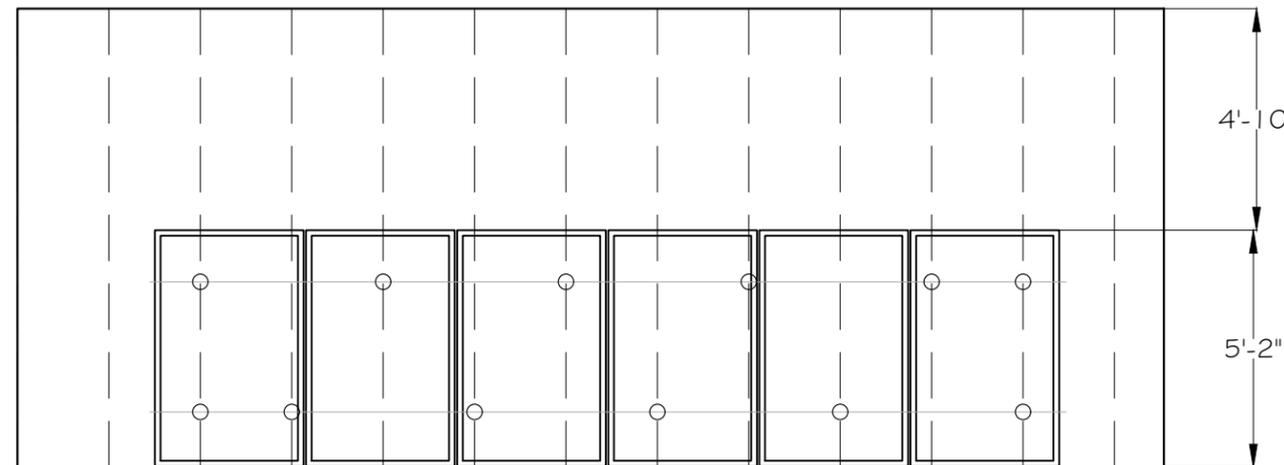
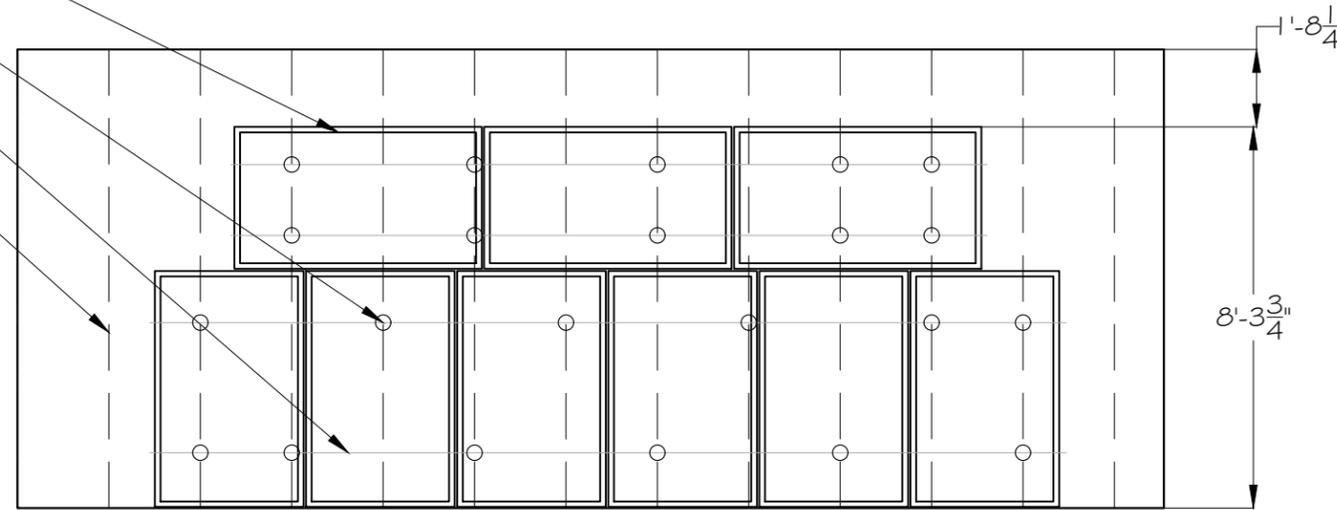
BUILDING RIDGE ELEVATION: 15'

FLASHFOOT2 ATTACHMENT POINTS

IRONRIDGE RAIL  
☐XR10 ☑XR100 ☐XR1000

DRAWING SCALE  
1/4" = 1'-0"

SOLAR MODULE  
FLASHFOOT  
ATTACHMENT POINT  
IRONRIDGE RAIL  
RAFTERS @ 24" O.C. TYP.



LOAD CALCULATIONS (ROOF - 1)	
TOTAL # OF MODULES	9
TOTAL # OF STANDOFFS	22
LINEAR FT OF RAIL	76 FT
MODULE WEIGHT	45 LBS
STANDOFF WEIGHT	2.0 LBS
RAIL WEIGHT LBS/FT	0.9 LBS
TOTAL MODULE WEIGHT	405 LBS
TOTAL STANDOFF WEIGHT	44.0000 LBS
TOTAL RAIL WEIGHT	68.4000 LBS
TOTAL ARRAY WEIGHT	517.4000 LBS
TOTAL ARRAY AREA	157.5000 FT²
POINT LOAD	23.5 LBS
DEAD LOAD	3.29 LBS/FT²

LOAD CALCULATIONS (ROOF - 2)	
TOTAL # OF MODULES	6
TOTAL # OF STANDOFFS	12
LINEAR FT OF RAIL	42 FT
MODULE WEIGHT	45 LBS
STANDOFF WEIGHT	2.0 LBS
RAIL WEIGHT LBS/FT	0.9 LBS
TOTAL MODULE WEIGHT	270 LBS
TOTAL STANDOFF WEIGHT	24.0000 LBS
TOTAL RAIL WEIGHT	37.8000 LBS
TOTAL ARRAY WEIGHT	331.8000 LBS
TOTAL ARRAY AREA	105.0000 FT²
POINT LOAD	27.7 LBS
DEAD LOAD	3.16 LBS/FT²

DESIGN & DRAFTING BY:  
DANA HAJEDEMOS



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PROJECT NAME  
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1820 NORTH TEJON STREET  
COLORADO SPRINGS, CO, 80907

SHEET NAME  
ROOF 1

SHEET SIZE  
11" x 17"

SHEET NUMBER  
S-1



April 4, 2023



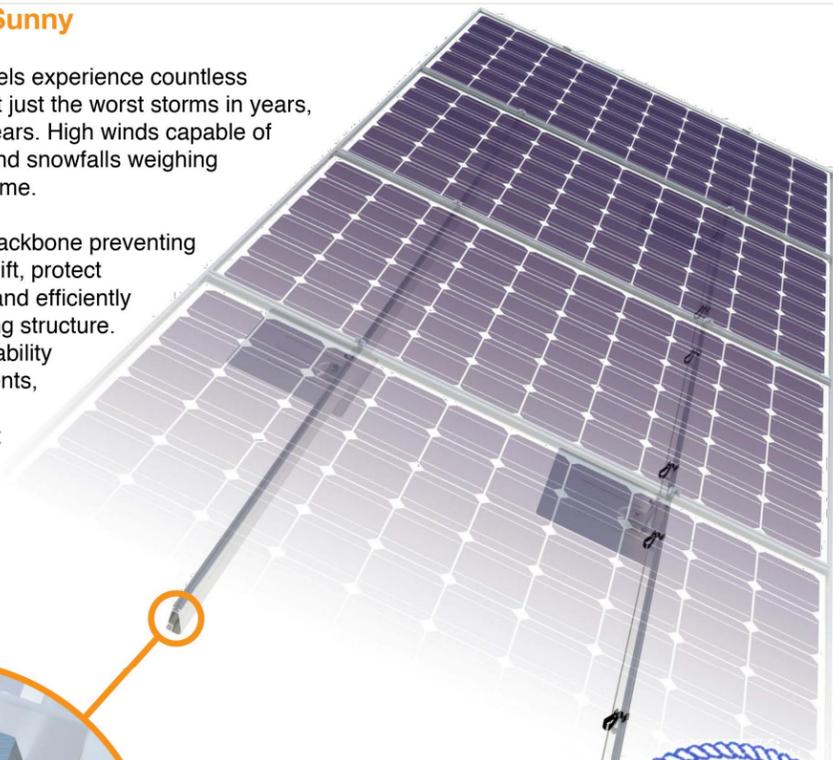
## XR Rail Family

Tech Brief

### Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



#### Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.



April 4, 2023

#### Compatible with Flat & Pitched Roofs



XR Rails are compatible with FlashFoot and other pitched roof attachments.



IronRidge offers a range of tilt leg options for flat roof mounting applications.

#### Corrosion-Resistant Materials

All XR Rails are made of marine-grade aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



## XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.

Tech Brief



XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves 6 foot spans, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available



XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 8 feet.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

## Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit [IronRidge.com](http://IronRidge.com) for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

DESIGN & DRAFTING BY:  
DANA HAJEDEMOS



PV Installation  
Professional  
Dana Hajedemos  
PV-200434-020500

#### REVISIONS

DESCRIPTION	DATE	REV
ORIGINAL	10/7/2022	A



#### PROJECT NAME

BAHR, PAOLO  
1820 NORTH TEJON STREET  
COLORADO SPRINGS, CO, 80907

#### SHEET NAME

MOUNTING  
DETAIL

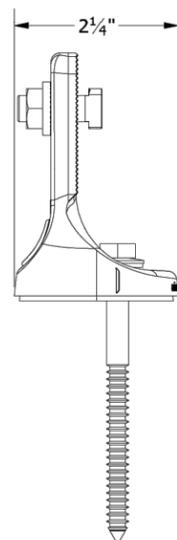
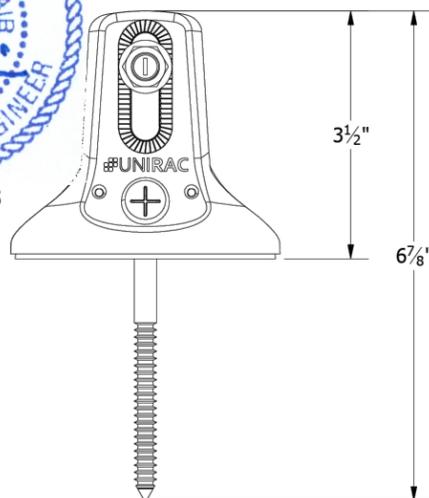
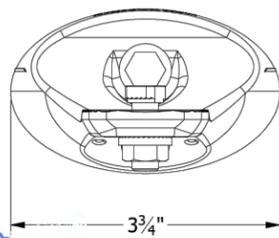
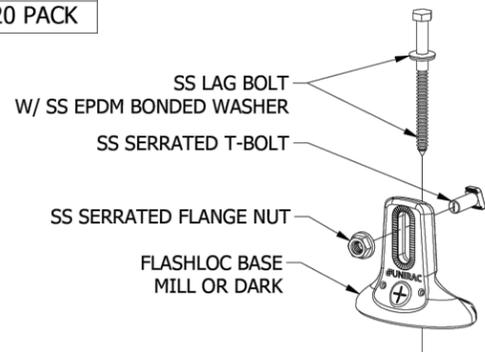
#### SHEET SIZE

11" x 17"

#### SHEET NUMBER

PV-3

PART TABLE	
P/N	DESCRIPTION
004085M	FLASHLOC COMP KIT MILL, 20 PACK
004085D	FLASHLOC COMP KIT DARK, 20 PACK



**UNIRAC**  
 1411 BROADWAY BLVD. NE  
 ALBUQUERQUE, NM 87102 USA  
 PHONE: 505.242.6411  
 WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DRAWING
DESCRIPTION:	FLASHLOC COMP KIT
REVISION DATE:	10/3/2019

DRAWING NOT TO SCALE  
 ALL DIMENSIONS ARE  
 NOMINAL

PRODUCT PROTECTED BY  
 ONE OR MORE US PATENTS

LEGAL NOTICE

FL-A01  
 SHEET

### MODULE COMPATIBILITY

Panasonic (HIT)	Panasonic modules with 35 and 40 mm frames VBHNxxxYYzzA Where "YY" can be either KA, RA, SA or ZA; "zz" can be either 01, 02, 03, 04, 06, 06B, 11, 11B, 15, 15B, 16, 16B, 17, or 18; and "A" can be blank, E, G, or N
Panasonic (EverVolt)	Panasonic modules with 30 mm frames EVPVxxxA Where "A" can be blank or H, K or PK
Peimar	Peimar modules with 40 mm frames SbxxxYzz Where "b" can be G, M or P; "Y" can be M or P; and "zz" can be blank, (BF) or (FB)
Philadelphia Solar	Philadelphia modules with 35 and 40 mm frames PS-YzzAA-xxx Where "Y" can be M or P; "zz" can be 60, 72 or 144; and "AA" can be blank, (BF), (HC) or (HCBF)
Phono Solar	Phono Solar modules with 30, 35 and 40mm frames PSxxxY-ZZ/A Where "Y" can be M, M1, MH, M1H, M4, M4H, M5GF, M5GFH, M6, M6H, M8GF, M8GFH or P; "ZZ" can be 18, 20 or 24; and "A" can be F, T, TH, U, UH, UHB, VH or VHB
Prism Solar	Prism Solar modules with 35mm frames PST-xxxW-M72Y Where "Y" can be H, HB or HBI
Recom	Recom modules with 35 and 40 mm frames RCM-xxx-6yy Where "yy" can be MA, MB, ME or MF
REC Solar	REC modules with 30 and 38 mm frames RECxxxYYZZ Where "YY" can be AA, M, NP, NP2, PE, PE72, TP, TP2, TP2M, TP2SM, TP2S, TP3M or TP4; and "ZZ" can be blank, Black, BLK, BLK2, SLV, 72, or Pure
Renesola	ReneSola modules with 35 and 40 mm frames AAxxxY-ZZ Where "AA" can be SPM(SLP) or JC; "Y" can be blank, F, M or S; and "ZZ" can be blank, Ab, Ab-b, Abh, Abh-b, Abv, Abv-b, Bb, Bb-b, Bbh, Bbh-b, Bbv, Bbv-b, Db, Db-b, or 24/Bb
Renogy	Renogy Modules with 40 mm frames RNG-xxxY Where "xxx" is the module power rating; and "Y" can be D or P
Risen	Risen Modules with 30, 35 and 40 mm frames RSMyy-a-xxxZZ Where "yy" can be 60, 72, 110, 120, 132 or 144; "a" can be 6, 7 or 8; and "ZZ" can be M, P or BMDG
S-Energy	S-Energy modules with 35 and 40mm frames SABB-CCYYY-xxxZ Where "A" can be C, D, L or N; "BB" can be blank, 20, 25, 40 or 45; "CC" can be blank, 60 or 72; "YYY" can be blank, BDE, MAE, MAI, MBE, MBI, MCE or MCI; and "Z" can be V, M-10, P-10 or P-15
SEG Solar	SEG Solar with 30, 35 and 40 mm frames SEG-aYY-xxxZZ Where "a" can be blank, 6 or B; "YY" can be blank, MA, MB, PA, or PB; and "ZZ" can be blank, BB, BG, BW, HV, WB, WW, BMB, BMA-HV, BMA-BG, BMA-TB, BMB-TB, BMB-HV, BMD-HV, BMB-BG
Seraphim USA	Seraphim modules with 30, 35 and 40 mm frames SRP-xxx-YYY-ZZ Where "xxx" is the module power rating; and "YYY" can be BMA, BMD, 6MA, 6MB, 6PA, 6PB, 6QA-XX-XX, and 6QB-XX-XX; ZZ is blank, BB, BG or HV
Sharp	Sharp modules with 35 and 40 mm frames NUYYxxx Where "YY" can be SA or SC

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FLASH MOUNT INSTALLATION MANUAL - 25

DESIGN & DRAFTING BY:  
 DANA HAJEDEMOS



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 COLORADO SPRINGS, CO, 80907

SHEET NAME  
 MOUNTING  
 DETAIL

SHEET SIZE

11" x 17"

SHEET NUMBER

PV-3.1

SOLAR'S MOST TRUSTED 

inter solar award  
 2022 FINALIST



REC ALPHA<sup>®</sup>  
PURE SERIES

PRODUCT SPECIFICATIONS

410 Wp

19.3 W/FT<sup>2</sup>

22.2% EFFICIENCY



ELIGIBLE



LEAD-FREE  
ROHS COMPLIANT

EXPERIENCE



PERFORMANCE

COMPACT PANEL SIZE



SOLAR'S MOST TRUSTED

## REC ALPHA PURE SERIES

### PRODUCT SPECIFICATIONS

**GENERAL DATA**

Cell type: 132 half-cut REC heterojunction bifacial cells with lead-free, gapless technology, 6 strings of 22 cells in series

Glass: 0.13 in (3.2 mm) solar glass with anti-reflective surface treatment in accordance with EN 12150

Backsheet: Highly resistant polymer (black)

Frame: Anodized aluminum (black)

Junction box: 3-part, 3 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790

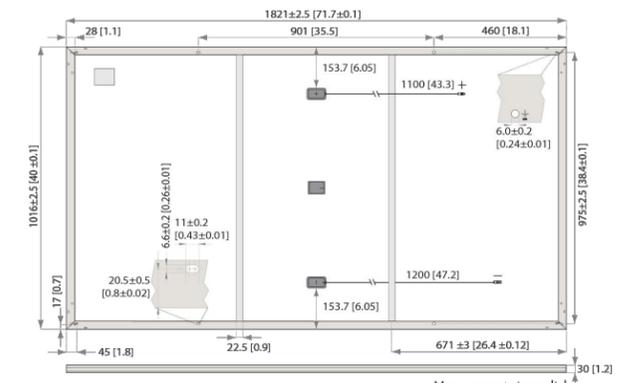
Connectors: Stäubli MC4 PV-KBT4/KST4 (4 mm<sup>2</sup>) in accordance with IEC 62852, IP68 only when connected

Cable: 12 AWG (4 mm<sup>2</sup>) PV wire, 43+47 in (1.1+1.2 m) in accordance with EN 50618

Dimensions: 71.7 x 40 x 1.2 in (19.91 ft<sup>3</sup>) / 1821 x 1016 x 30 mm (1.85 m<sup>3</sup>)

Weight: 45 lbs (20.5 kg)

Origin: Made in Singapore



Measurements in mm [in]

**ELECTRICAL DATA**

	Product Code*: RECxxxAA Pure						
Power Output - P <sub>MAX</sub> (Wp)	380	385	390	395	400	405	410
Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5	0/+5	0/+5
Nominal Power Voltage - V <sub>MPP</sub> (V)	40.9	41.2	41.5	41.8	42.1	42.4	42.7
Nominal Power Current - I <sub>MPP</sub> (A)	9.30	9.35	9.40	9.45	9.51	9.56	9.61
Open Circuit Voltage - V <sub>OC</sub> (V)	48.4	48.5	48.6	48.7	48.8	48.9	49.0
Short Circuit Current - I <sub>SC</sub> (A)	10.17	10.18	10.22	10.25	10.28	10.30	10.35
Power Density (W/ft <sup>2</sup> )	19.1	19.3	19.6	19.8	20.1	20.3	20.6
Panel Efficiency (%)	20.5	20.8	21.1	21.4	21.6	21.9	22.2

**STC**

Power Output - P <sub>MAX</sub> (Wp)	290	293	297	301	305	309	312
Nominal Power Voltage - V <sub>MPP</sub> (V)	38.5	38.8	39.1	39.4	39.7	40.0	40.2
Nominal Power Current - I <sub>MPP</sub> (A)	7.51	7.55	7.59	7.63	7.68	7.72	7.76
Open Circuit Voltage - V <sub>OC</sub> (V)	45.6	45.7	45.8	45.9	46.0	46.1	46.2
Short Circuit Current - I <sub>SC</sub> (A)	8.12	8.16	8.20	8.24	8.28	8.32	8.36

**NMOT**

Values at standard test conditions (STC: air mass AM1.5, irradiance 1075 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 AM1.5, 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 61730  
 IEC 62804 PID  
 IEC 61701 Salt Mist  
 IEC 62716 Ammonia Resistance  
 UL 61730 Fire Type Class 2  
 IEC 62782 Dynamic Mechanical Load  
 IEC 61215-2:2016 Hailstone (35mm)  
 IEC 62321 Lead-free acc. to RoHS EU 863/2015  
 ISO 14001, ISO 9001, IEC 45001, IEC 62941



**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

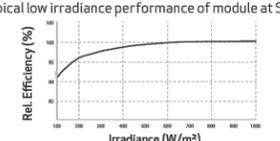
\*The temperature coefficients stated are linear values

**DELIVERY INFORMATION**

Panels per pallet: 33  
 Panels per 40 ft GP/high cube container: 792 (24 pallets)  
 Panels per 53 ft truck: 891 (27 pallets)

**LOW LIGHT BEHAVIOUR**

Typical low irradiance performance of module at STC:



Specifications subject to change without notice.

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.



www.recgroup.com

DESIGN & DRAFTING BY:  
DANA HAJEDEMOS



PV Installation Professional  
Dana Hajedemos  
PV-200414-020500

REVISIONS

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PROJECT NAME

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COLORADO SPRINGS, CO, 80907

SHEET NAME

EQUIPMENT SPECIFICATION SHEETS

SHEET SIZE

11" x 17"

SHEET NUMBER

PV-4

# Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

12-25  
YEAR  
WARRANTY



INVERTERS

## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

[solaredge.com](http://solaredge.com)



## Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

Model Number	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXBXX4								
<b>OUTPUT</b>									
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac	
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac	
AC Frequency (Nominal)	59.3 - 60 - 60.5 <sup>1)</sup>							Hz	
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A	
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A	
Power Factor	1, adjustable -0.85 to 0.85								
GFDI Threshold	1								A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes								
<b>INPUT</b>									
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W	
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W	
Transformer-less, Ungrounded	Yes								
Maximum Input Voltage	480								Vdc
Nominal DC Input Voltage	380				400				Vdc
Maximum Input Current @240V <sup>2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V <sup>2)</sup>	-	9	-	13.5	-	-	27	Adc	
Max. Input Short Circuit Current	45								Adc
Reverse-Polarity Protection	Yes								
Ground-Fault Isolation Detection	600ka Sensitivity								
Maximum Inverter Efficiency	99	99.2							%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%	
Nighttime Power Consumption	< 2.5								W

<sup>1)</sup> For other regional settings, please contact SolarEdge support  
<sup>2)</sup> A higher current source may be used; the inverter will limit its input current to the values stated

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1820 NORTH TEJON STREET  
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SHEET NAME  
EQUIPMENT  
SPECIFICATION  
SHEETS

SHEET SIZE  
11" x 17"

SHEET NUMBER  
PV-5

# Power Optimizer For North America

S440, S500



POWER OPTIMIZER

## PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detected abnormal PV connector behavior, preventing potential safety issues\*
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

\* Expected availability in 2022

[solaredge.com](http://solaredge.com)

**solaredge**

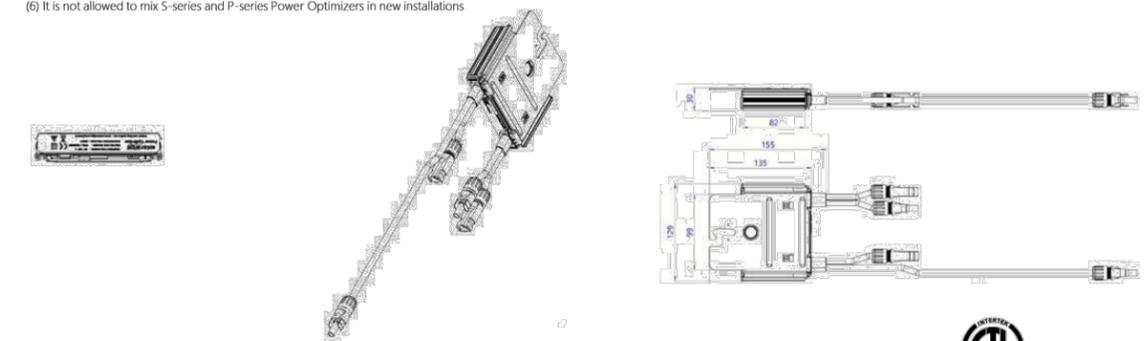
## Power Optimizer For North America S440, S500

	S440	S500	Unit
<b>INPUT</b>			
Rated Input DC Power <sup>(1)</sup>	440	500	W
Absolute Maximum Input Voltage (Voc)	60		Vdc
MPPT Operating Range	8 - 60		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15	Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Overvoltage Category	II		
<b>OUTPUT DURING OPERATION</b>			
Maximum Output Current	15		Adc
Maximum Output Voltage	60		Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)</b>			
Safety Output Voltage per Power Optimizer	1+/-0.1		Vdc
<b>STANDARD COMPLIANCE</b>			
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020		
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3		
Safety	IEC62109-1 (class II safety), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
<b>INSTALLATION SPECIFICATIONS</b>			
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 153 x 30 / 5.07 x 6.02 x 1.18		mm / in
Weight (including cables)	655 / 1.5		gr / lb
Input Connector	MC4 <sup>(2)</sup>		
Input Wire Length	0.1 / 0.32		m / ft
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32		m / ft
Operating Temperature Range <sup>(3)</sup>	-40 to +85		°C
Protection Rating	IP68 / Type6B		
Relative Humidity	0 - 100		%

(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed  
 (2) For other connector types please contact SolarEdge  
 (3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter	Single Phase HD-Wave	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	S440, S500	8	14	18
Maximum String Length (Power Optimizers)	25			50 <sup>(4)</sup>
Maximum Nominal Power per String	5700 (6000 with SE7600-US-SE1400-U)		6000	12750
Maximum Allowed Connected Power per String <sup>(5)</sup> (Permitted only when the difference in connected power between strings is 1,000W or less)	Refer to Footnote 5		One String 7200W Two strings or more 7800W	15,000W
Parallel Strings of Different Lengths or Orientations	Y			

(4) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement  
 (5) If the inverters rated AC power < maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: <https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf>  
 (6) It is not allowed to mix S-series and P-series Power Optimizers in new installations



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DESIGN & DRAFTING BY:  
DANA HAJEDEMOS



REVISIONS		
DESCRIPTION	DATE	REV
ORIGINAL	10/7/2022	A



PROJECT NAME

BAHR, PAOLO  
1820 NORTH TEJON STREET  
COLORADO SPRINGS, CO, 80907

SHEET NAME  
EQUIPMENT  
SPECIFICATION  
SHEETS

SHEET SIZE  
11" x 17"

SHEET NUMBER  
PV-6



## U9101-RL-TG-KK



Catalog Number	U9101-RL-TG-KK
Marketing Product Description	5 Terminal Ringless Small Hub Open Triplex Ground Horn Bypass
UPC	784572290426
Length (IN)	4.125
Width (IN)	11
Height (IN)	14.563
Brand Name	Milbank
Type	Ringless Meter Socket
Application	Meter Socket
Standard	UL Listed;Type 3R
Voltage Rating	600 Volts Alternating Current
Amperage Rating	200 Continuous Ampere
Phase	1 Phase
Frequency Rating	60 Hertz
Size	4.125L x 11W x 14.563H
Number Of Cutouts	0
Cutout Size	No Main Breaker
Cable Entry	Overhead
Terminal	Lay in
Insulation	Glass Polyester
Mounting	Surface Mount

Enclosure	G90 Galvanized Steel with Powder Coat Finish
Jaw Quantity	5 Terminal
Bypass Type	Horn Bypass
Number of Meter Positions	1 Position
Equipment Ground	Triplex Ground
Hub Opening	Small Hub Opening
Line Side Wire Range	6 AWG - 350 kcmil
Load Side Wire Range	6 AWG - 350 kcmil
Number Of Receptacles	0

Please consult serving utility for their requirements prior to ordering or installing, as specifications and approvals vary by utility and may require local electrical inspector approval. All installations must be installed by a licensed electrician and must comply with all national and local codes, laws and regulations. Milbank reserves the right to make changes in specifications and features shown without notice or obligation.

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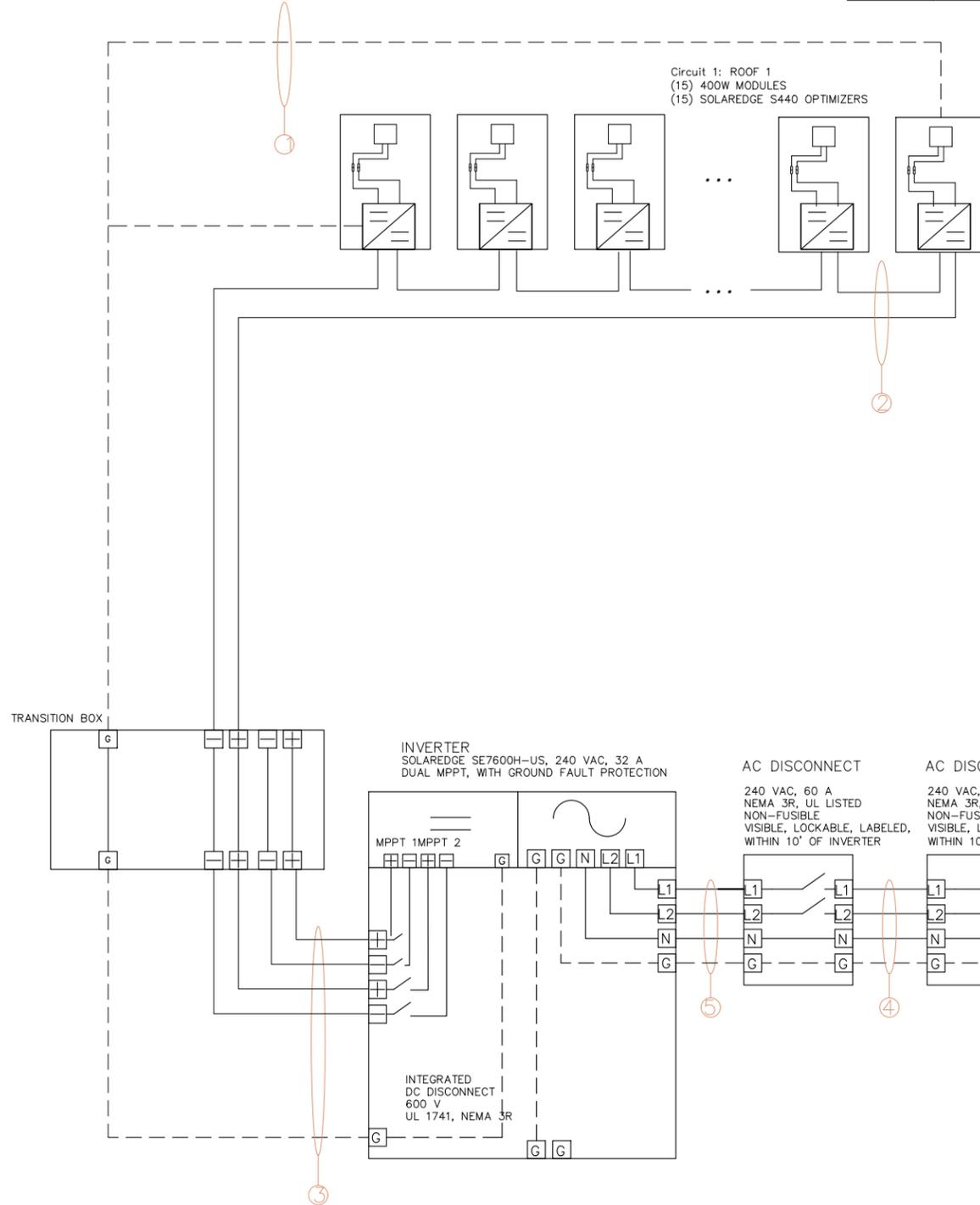
SHEET NAME  
EQUIPMENT  
SPECIFICATION  
SHEETS

SHEET SIZE  
11" x 17"

SHEET NUMBER  
PV-7

PHOTOVOLTAIC ELECTRICAL DIAGRAM

CABLE SCHEDULE AND CALCS																
CIRCUIT I.D. #	SERVICE	QTY	CONDUCTOR SIZE	CONDUCTOR AMPACITY	CONDUCTOR MATERIAL	LONGEST LENGTH(FT)	CONDUCTOR INSULATION (80°C)	GROUND SIZE	GROUND QUANTITY	GROUND INSULATION	CONDUIT TYPE	CONDUIT FILL DERATE	CONDUIT SIZE	TEMP DERATE	DERATED AMPACITY	MAX CIRCUIT CURRENT
1	DC	0	-	-	-	-	-	AWG #G	1	BARE	FREE AIR	-	N/A	-	-	-
2	DC	2	AWG #10	40	CU	75	PV WIRE	AWG #G	-	-	EMT OR FREE AIR	1	3/4"	0.71	28.4A	15A
3	DC	4	AWG #10	40	CU	40	THWN-2	AWG #G	1	THWN-2	EMT OR FMC	0.8	3/4"	0.71	22.72A	15A
4	AC	3	AWG #6	75	CU	90	THWN-2	AWG #G	1	THWN-2	FREE-AIR	1	3/4"	0.71	68.25A	32A
5	AC	3	AWG #6	75	CU	10	THWN-2	AWG #G	1	THWN-2	EMT	1	3/4"	0.91	68.25A	32A



GENERAL NOTES:

1. INSTALLATION SHALL BE ACCORDING TO THE NATIONAL ELECTRIC CODE 2020 AND ALL STATE AND LOCAL STANDARDS AND CODES.
2. INSTALL LABELS ON ALL ENCLOSURES, INVERTERS, SWITCHES, LOAD CENTERS AS PER NEC.
3. AC DISCONNECT SHALL BE EXTERNALLY OPERATED KNIFE BLADE TYPE AND LOCKABLE IN BOTH ON AND OFF POSITIONS, AND DIRECTLY ACCESSIBLE TO UTILITY.
4. ALL ELECTRICAL WORK WILL COMPLY AND BE INSPECTED BY A LICENSED MASTER ELECTRICIAN AND ALL LOCAL CODE AUTHORITIES.
5. CONTRACTOR IS RESPONSIBLE FOR ENSURING INSTALLATION IS PER NEC & MANUFACTURER'S DESIGN SPEC.
6. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600V AND 90°C.
7. CONTINUOUS GROUND IS REQUIRED. IRREVERSIBLE COMPRESSION CLAMPS REQUIRED FOR ALL GROUND SPLICES.
8. SYSTEM COMPLIES WITH RAPID SHUTDOWN PER 2020 NEC. RAPID SHUTDOWN SIGNAGE SHALL BE INSTALLED, SEE SHEET E-2.

DESIGN & DRAFTING BY:  
DANA HAJEDEMOS



REVISIONS

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PROJECT NAME

BAHR, PAOLO  
1820 NORTH TEJON STREET  
COLORADO SPRINGS, CO, 80907

SHEET NAME

ELECTRICAL  
DIAGRAM

SHEET SIZE

11" x 17"

SHEET NUMBER

E-1

**PHOTOVOLTAIC AC DISCONNECT**  
**RATED AC OUTPUT CURRENT: 32 A**  
**NOMINAL OPERATING AC VOLTAGE: 240 V**

REQ'D BY: NEC 690.54 1  
 APPLY TO:  
 PV AC DISCONNECT

**WARNING**  
**TURN OFF PHOTOVOLTAIC AC**  
**DISCONNECT PRIOR TO WORKING**  
**INSIDE PANEL**

REQ'D BY: NEC 110.27(C) 2  
 APPLY TO:  
 PV AC DISCONNECT

**WARNING**  
**DUAL POWER SOURCE**  
**SECOND SOURCE IS PV SYSTEM**

REQ'D BY: NEC 705.10 & NEC 690.56(B) 3  
 MAIN SERVICE PANEL

**WARNING**  
**INVERTER OUTPUT CONNECTION**  
**DO NOT RELOCATE THIS OVERCURRENT DEVICE.**

REQ'D BY: NEC 705.12 (B)(3)(2) 4  
 INTERCONNECTION BREAKER  
 INVERTER OUTPUT CIRCUIT CONNECTIONS IN AGG PANEL

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

REQ'D BY: NEC 705.12 (B)(2)(3)(c) 5  
 POINT OF INTERCONNECTION  
 (MAIN SERVICE PANEL)

**WARNING**  
**POWER TO THIS SERVICE IS ALSO SUPPLIED FROM**  
**ON-SITE PHOTOVOLTAIC GENERATION**  
**SEE MAP FOR LOCATION OF MAIN AC DISCONNECT**

REQ'D BY: NEC 705.10 3  
 SEE PLACARD MAP AT RIGHT

**WARNING**  
**THIS DISCONNECTION OF THE**  
**GROUNDING CONDUCTORS MAY**  
**RESULT IN OVERVOLTAGE**  
**ON THE EQUIPMENT**

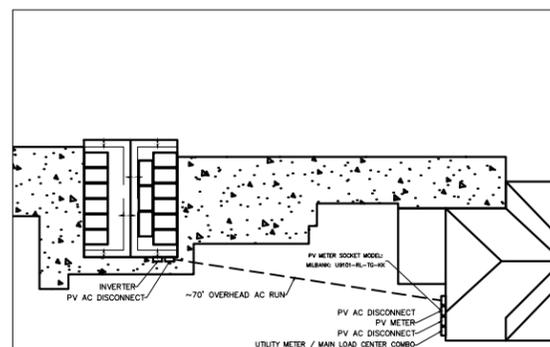
REQ'D BY: NEC 690.31(E) 6  
 APPLY TO: N/A  
 BIPOLAR PV SYSTEM

**PV SYSTEM DC DISCONNECT**  
**MAXIMUM DC VOLTAGE OF PV SYSTEM:**  
**500 V DC**

REQ'D BY: NEC 690.13(B) 7  
 APPLY TO:  
 INVERTER INTEGRATED DC DISCONNECT

**WARNING - ELECTRIC SHOCK HAZARD**  
**TERMINALS ON BOTH LINE AND LOAD SIDES**  
**MAY BE ENERGIZED IN THE OPEN POSITION**

REQ' BY: 706.15(C)(4) & 690.13(B) 8  
 APPLY TO:  
 POINTS OF CONNECTION



**CAUTION**  
**MULTIPLE SOURCES OF POWER.**  
**POWER TO THIS BUILDING IS SUPPLIED**  
**FROM THE FOLLOWING SOURCES**  
**WITH DISCONNECTS LOCATED AS SHOWN**

**WARNING - ELECTRIC SHOCK HAZARD**  
**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**

REQ' BY: 690.13(B) AND 706.15(C)(4) 9  
 APPLY TO:  
 COMBINER BOXES, RECOMBINER BOXES, DC DISCONNECTS  
 IF APPLICABLE

**SOLAR PV DC CIRCUIT**

REQ' BY: 690.31(O)(2) 10  
 APPLY TO:  
 SOLAR CONDUIT INSIDE ARRAY BOUNDARY

**PHOTOVOLTAIC POWER SOURCE**

REQ' BY: 690.31(D)(2) 11  
 APPLY TO:  
 SOLAR CONDUIT

**WARNING - DO NOT DISCONNECT UNDER LOAD**

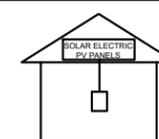
REQ' BY: 690.15(B) 12  
 APPLY TO:  
 MAIN SERVICE DISCONNECT

**RAPID SHUTDOWN SWITCH**  
**FOR SOLAR PV SYSTEM**

REQ' BY: NEC 690.56(C)(2) 13  
 APPLY TO:  
 PV AC DISCONNECT

**PHOTOVOLTAIC SYSTEM EQUIPPED**  
**WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN  
 SWITCH TO THE  
 "OFF" POSITION TO  
 SHUTDOWN PV SYSTEM  
 AND REDUCE  
 SHOCK HAZARD  
 IN ARRAY



REQ' BY: NEC 690.56(C), IFC 604.11.3.1(1) 14  
 BLACK ON YELLOW BACKGROUND  
 APPLY TO: PV AC DISCONNECT

**SIGNAGE REQUIREMENTS**  
 NEC 110.21(B)(1)  
 ANSI Z535.4-2011 PROVIDES GUIDELINES FOR SUITABLE FONT SIZES, WORDS,  
 COLORS, SYMBOLS, AND LOCATION REQUIREMENTS FOR LABELS.  
 NEC 110.21(B)(3)  
 IFC 605.11.1.3  
 ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL  
 SIGNS SHALL BE WEATHER RESISTANT.  
 LABELS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND ENVIRONMENT.

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PROJECT NAME

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SHEET NAME

SYSTEM  
 LABELING  
 DETAIL

SHEET SIZE

11" x 17"

SHEET NUMBER

E-2