PV SYSTEM DESCRIPTION

SCOPE OF WORK:-

THIS PROJECT CONSISTS OF THE INSTALLATION OF (32) PHOTOVOLTAIC MODULES WITH (2) UTILITY INTERACTIVE INVERTERS.
PV MODULES WILL BE MOUNTED TO AN EXISTING GROUND USING 2 SINGLE-AIXS EAST-WEST SUN-TRACKING GROUND MOUNTS MOUNTING SUPPORT.

THE ATTACHMENT SYSTEM IS SPECIFICALLY DESIGNED TO WITHSTAND WIND LOADS AND SEISMIC LOADS ON EXISTING GROUND MOUNT.
REFER TO CODE COMPLIANT INSTALLATION MANUAL FOR DETAILED INFORMATION AND WATER PROOFING SPECIFICATIONS.

BATTERY(S) : 4- EG4® 14.3KWH POWER PRO WALL MOUNT
TRANSFER SWITCH: 1- 7406 400A TRANSFER SWITCH

POINT OF INTERCONNECTION: LOAD SIDE TAP CONNECTION

SYSTEM DESCRIPTION

MODULE MANUFACTURER	BLUESUN SOLAR
MODULE PART NUMBER	BSM550M10-72HBD 550W
MODULE WATTAGE	550WATT
MODULE COUNT	32
INVERTER MANUFACTURER	EG4®
INVERTER PART NUMBER	18KPV-12LV
INVERTER COUNT	2
DC SYSTEM SIZE -KW	17.6
AC SYSTEM SIZE - KW	24
ARRAY COUNT	2
ARRAY AREA (SQ.FT.)	892.48

GENERAL NOTES

- **LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION**
- **THIS PROJECT SHALL COMPLY LOCAL ORDINANCES**
- **PROPER ACCESS AND WORKING CLEARANCE WILL BE PROVIDED**
- **ALL ELECTRICAL WORK SHOWN ON THESE PLANS WILL BE COMPLETED BY THE UNDERSIGNED**
- **ALL APPLICABLE PV EQUIPMENT LISTED AND COMPLIANT WITH UL2703 AND UL1703**
- **THE SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND THE UTILITY IS OBTAINED**
- **IF THE EXISTING MAIN PANEL DOES NOT HAVE VERIFIABLE GROUNDING ELECTRODE, IT IS THE INSTALLERS RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE**
- **EACH MODULE WILL BE GROUNDED USING THE SUPPLIED CONNECTION POINTS IDENTIFIED ON THE MODULE AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS**
- **A LADDER SHALL BE IN PLACE FOR THE INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS**
- **ALL WORK SHALL COMPLY WITH 2020 NEC, 2021 IBC, MUNICIPAL CODE, AND ALL**
- **MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS"**
- **PHOTOVOLTAIC SYSTEM WILL COMPLY WITH 2020 NEC.**
- **ELECTRICAL SYSTEM GROUNDING WILL COMPLY WITH 2020 NEC.**
- **PHOTOVOLTAIC SYSTEM IS UNGROUNDED, NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER.**
- **MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.**
- **INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.**
- **ELECTRICAL EQUIPMENT AND MATERIAL TO BE LISTED, LABELED, AND INSTALLED PER THE NEC, THE INSTALLATION STANDARDS/MANUFACTURER'S RECOMMENDATIONS AND , IF REQUIRED A RECOGNIZED ELECTRICAL TESTING LABORATORY.**
- **ALL APPLICABLE ESS EQUIPMENT LISTED AND COMPLIANT WITH UL9540.**

APPLICABLE CODES

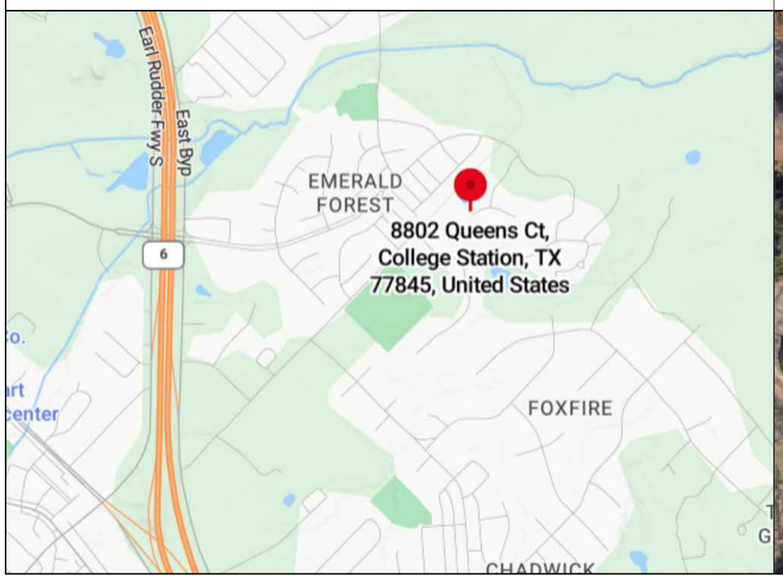
- **NEC 2020 ELECTRICAL CODE**
- **IFC 2021 FIRE CODE**
- **IRC 2021 RESIDENTIAL CODE**
- **IBC 2021 BUILDING CODE**

WIND EXPOSURE: C
WIND SPEED: 120mph
GROUND SNOW LOAD: 20psf
OCCUPANCY: PRIMARY RESIDENCE
CONSTRUCTION TYPE: RESIDENTIAL

TABLE OF CONTENTS

SPECIAL NOTES

VICINITY MAP



AERIAL MAP

LEGENDS & ABBREVIATIONS

- UM UTILITY METER
- MSP MAIN SERVICE PANEL
- PVC PV COMBINER PANEL
- TS TRANSFER SWITCH
- ACD AC DISCONNECT
- GE GENERATOR
- EB ENCLOSED BREAKER

(E) EXISTING (N) NEW
(NTS) NOT TO SCALE (INV) INVERTER
(M) MONITORING METER
(JB) JUNCTION BOX (CB) COMBINER BOX
(RSS) RAPID SHUTDOWN SWITCH
(EMT) ELECTRICAL METALLIC TUBING
(VOC) OPEN CIRCUIT VOLTAGE
(ISC) SHORT CIRCUIT CURRENT
(VMP) VOLTAGE MAX. POWER
(IMP) CURRENT MAX. POWER

REVISIONS

DESCRIPTION	DATE	REV
FOR REVIEW	11/2/2023	A

HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

17600W DC, 24000W AC

PAPER SIZE
11" x 17"

SHEET NAME
COVER SHEET

SHEET NUMBER
PV 1.0

SITE PLAN: SCALE:- 1" = 45'

SYSTEM DESCRIPTION	
MODULE MANUFACTURER	BLUESUN SOLAR
MODULE PART NUMBER	BSM550M10-72HBD 550W
MODULE WATTAGE	550WATT
MODULE COUNT	32
INVERTER MANUFACTURER	EG4®
INVERTER PART NUMBER	18KPV-12LV
INVERTER COUNT	2
DC SYSTEM SIZE -KW	17.6
AC SYSTEM SIZE - KW	24
ARRAY COUNT	2
ARRAY AREA (SQ.FT.)	892.48

LEGEND

- UM UTILITY METER
- MSP MAIN SERVICE PANEL
- EB ENCLOSED BREAKER
- DCD DC DISCONNECT
- INV INVERTER
- TS TRANSFER SWITCH
- JB JUNCTION BOX
- MSD MAIN SERVICE DISCONNECT
- BC BATTERY COMBINER
- BAT BATTERY

NOTES:

- PV ARRAY SHALL MAINTAIN A 10 FT BRUSH-FREE CLEARANCE.
- AC DISCONNECT SHALL BE LOCATED NEXT TO METER.

REVISIONS

DESCRIPTION	DATE	REV
FOR REVIEW	11/2/2023	A

HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

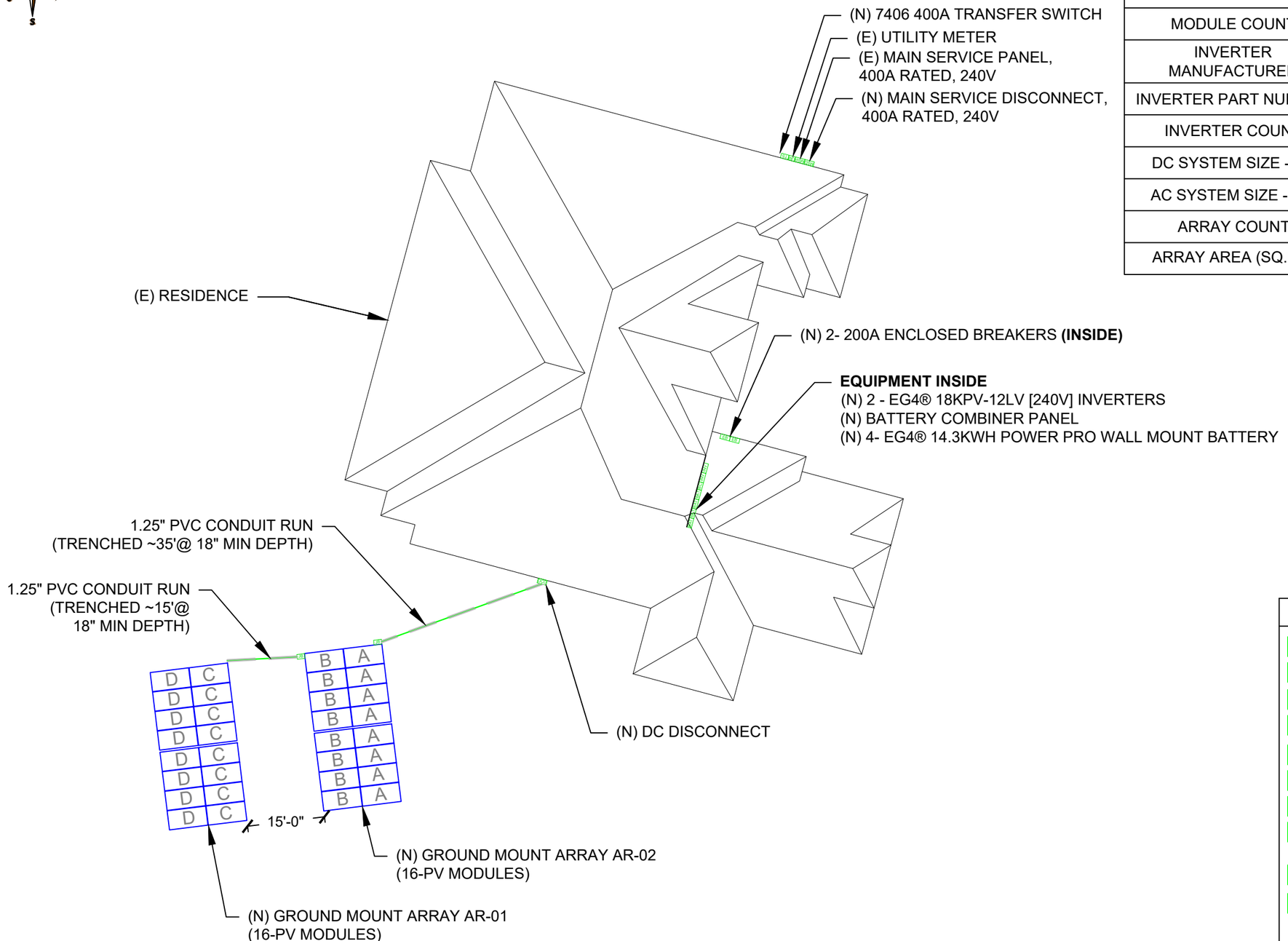
17600W DC, 24000W AC

PAPER SIZE
11" x 17"

SHEET NAME
PLOT PLAN

SHEET NUMBER
PV 2.0

SITE PLAN: SCALE:- 3/64" = 1'0"



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LEGEND

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- MSP MAIN SERVICE PANEL
- EB ENCLOSED BREAKER
- DCD DC DISCONNECT
- INV INVERTER
- TS TRANSFER SWITCH
- JB JUNCTION BOX
- MSD MAIN SERVICE DISCONNECT
- BC BATTERY COMBINER
- BAT BATTERY

A 8-MODULE STRINGING
B 8-MODULE STRINGING
C 8-MODULE STRINGING
D 8-MODULE STRINGING

REVISIONS

DESCRIPTION	DATE	REV
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HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

17600W DC, 24000W AC

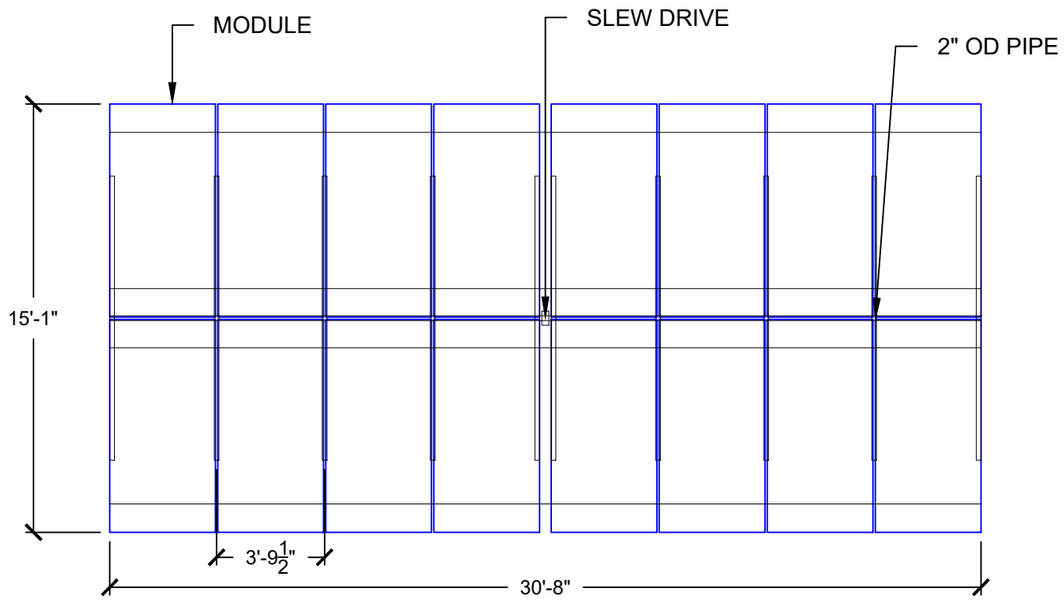
PAPER SIZE
11" x 17"

SHEET NAME
SITE PLAN

SHEET NUMBER
PV 2.1

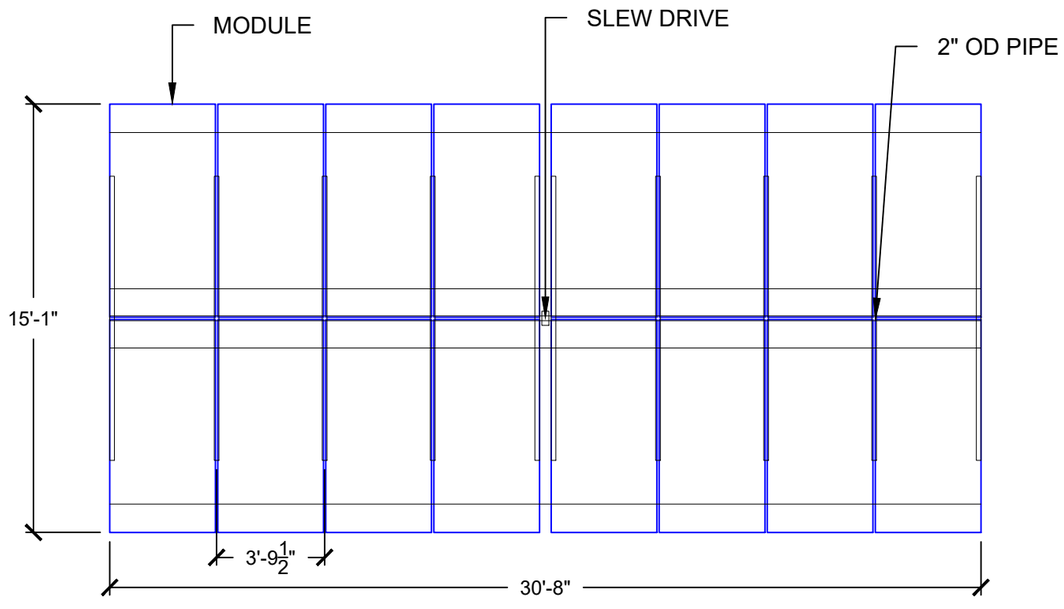
TYPE					
GROUND MOUNT	GROUND TILT	NO. OF MODULE	ARRAY TILT UP	AZIMUTH	ATTACHMENT
#1	0°	16	45°	83°	2 SINGLE-AIXS EAST-WEST SUN-TRACKING GROUND MOUNTS
#2	0°	16	45°	83°	2 SINGLE-AIXS EAST-WEST SUN-TRACKING GROUND MOUNTS

PV LAYOUT: #1
MODULE TILT: 45°
SCALE:3/16" = 1'-0"



DESIGN CRITERIA	
MODULES	32
MAX. DISTRIBUTED LOAD	3 PSF
SNOW LOAD	20 PSF
WIND SPEED (3-SEC GUST.)	120 MPH

PV LAYOUT: #2
MODULE TILT: 45°
SCALE:3/16" = 1'-0"



REVISIONS

DESCRIPTION	DATE	REV
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HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

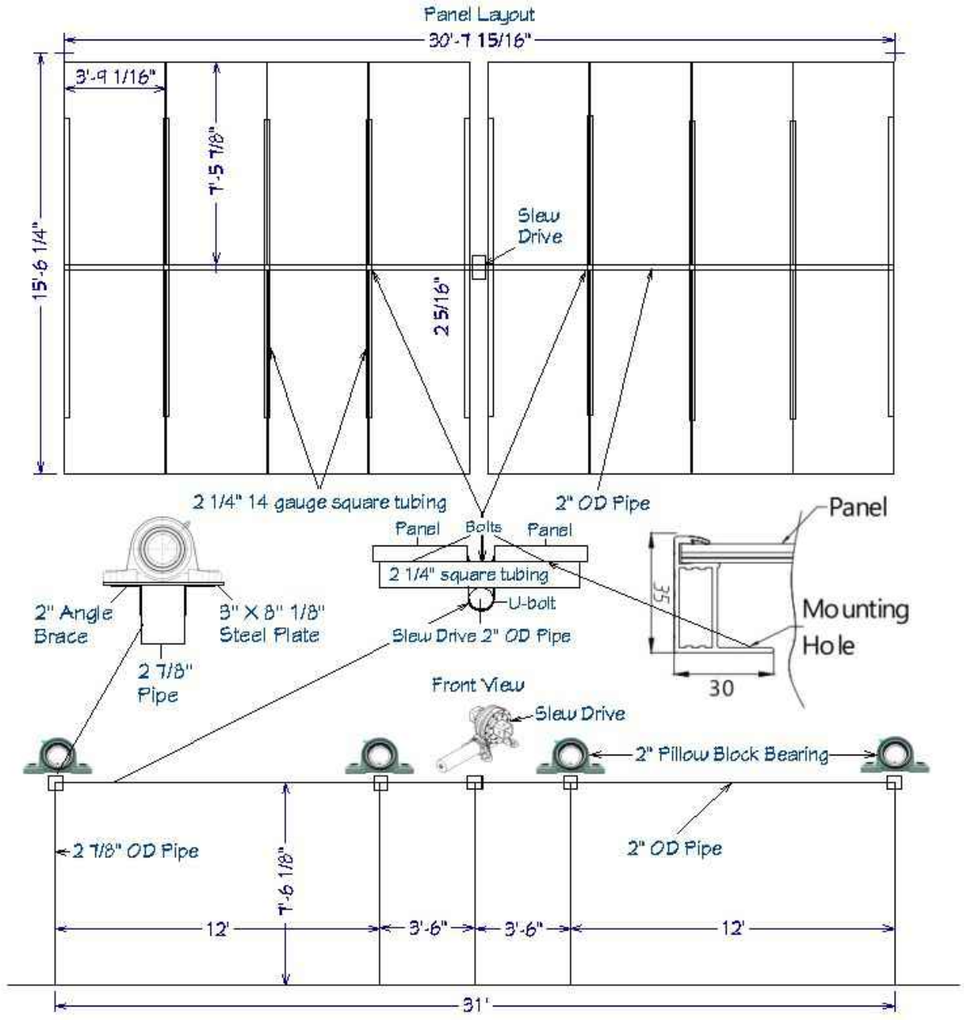
GROUND MOUNT PV SYSTEM
GRID -TIED

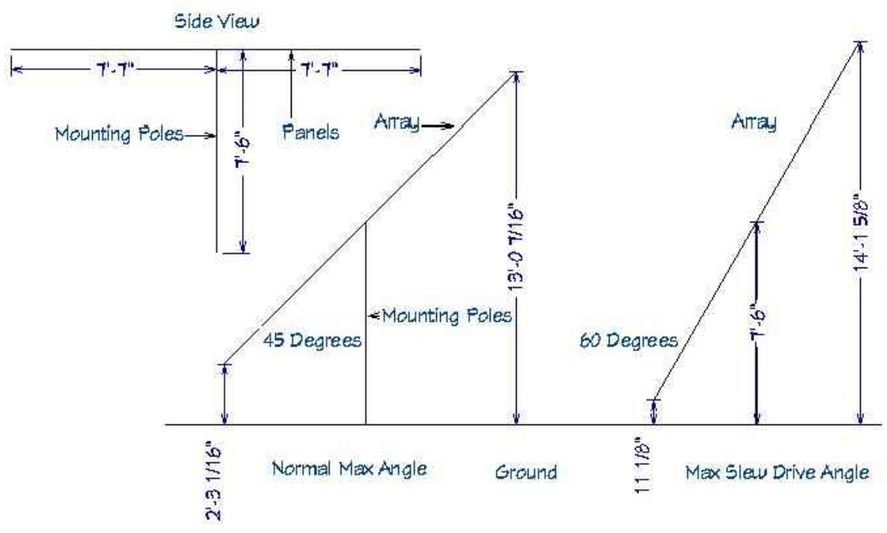
17600W DC, 24000W AC

PAPER SIZE
11" x 17"

SHEET NAME
PV LAYOUT

SHEET NUMBER
PV 3.0





REVISIONS		
DESCRIPTION	DATE	REV
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HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

17600W DC, 24000W AC

PAPER SIZE
11" x 17"

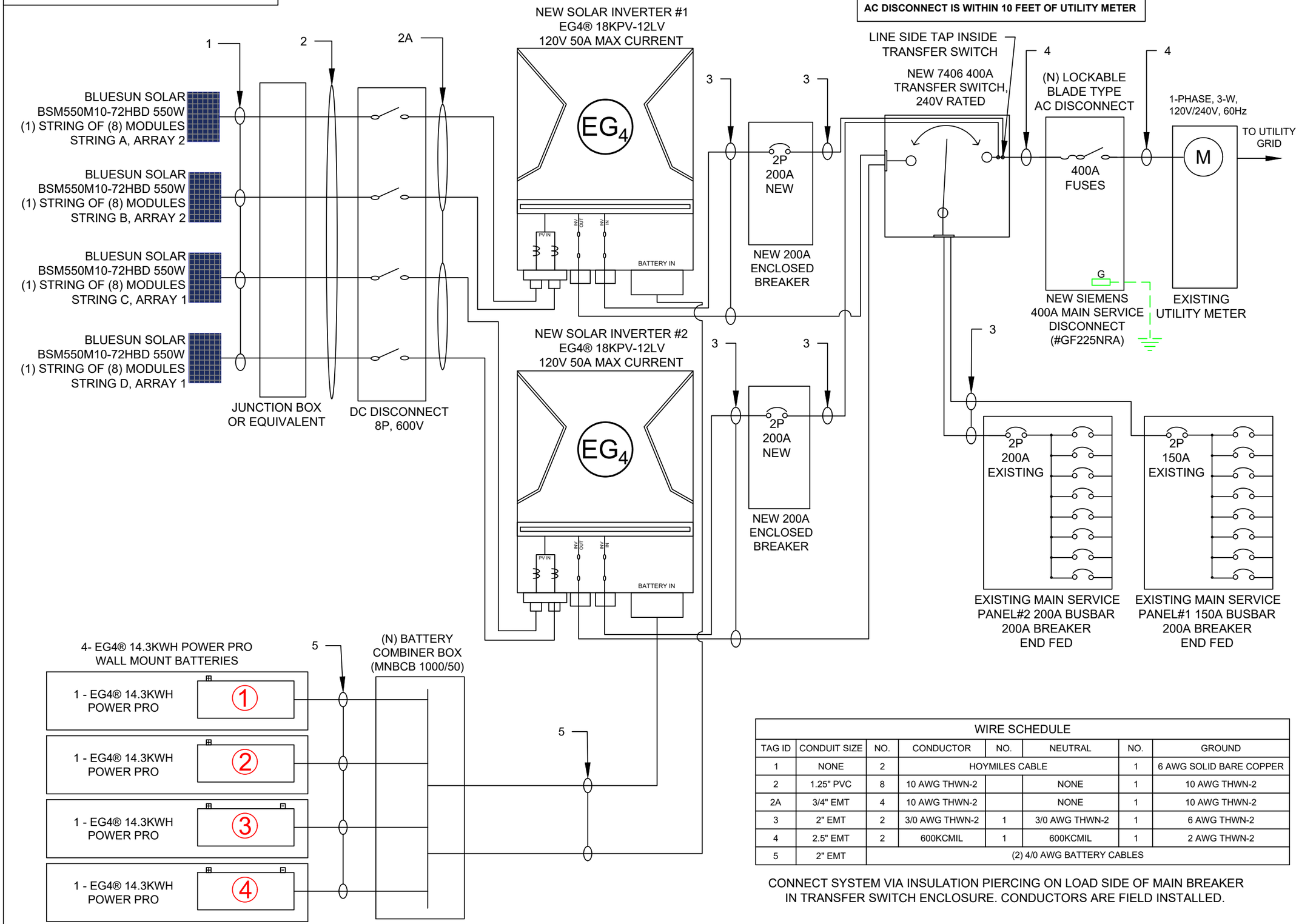
SHEET NAME
MOUNTING DETAIL

SHEET NUMBER
PV 4.0

NOTE:
EG4® INVERTER IS EQUIPPED WITH RAPID SHUTDOWN AS PER NEC 690.12

PV SYSTEM SIZE: 17.600kW DC, 24.000kW AC

AC DISCONNECT IS WITHIN 10 FEET OF UTILITY METER



WIRE SCHEDULE							
TAG ID	CONDUIT SIZE	NO.	CONDUCTOR	NO.	NEUTRAL	NO.	GROUND
1	NONE	2	HOYMILES CABLE			1	6 AWG SOLID BARE COPPER
2	1.25" PVC	8	10 AWG THWN-2		NONE	1	10 AWG THWN-2
2A	3/4" EMT	4	10 AWG THWN-2		NONE	1	10 AWG THWN-2
3	2" EMT	2	3/0 AWG THWN-2	1	3/0 AWG THWN-2	1	6 AWG THWN-2
4	2.5" EMT	2	600KCMIL	1	600KCMIL	1	2 AWG THWN-2
5	2" EMT	(2) 4/0 AWG BATTERY CABLES					

CONNECT SYSTEM VIA INSULATION PIERCING ON LOAD SIDE OF MAIN BREAKER IN TRANSFER SWITCH ENCLOSURE. CONDUCTORS ARE FIELD INSTALLED.

REVISIONS		
DESCRIPTION	DATE	REV
FOR REVIEW	11/2/2023	A

HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

17600W DC, 24000W AC

PAPER SIZE
11" x 17"

SHEET NAME
ELECTRICAL

SHEET NUMBER
PV 5..0

INVERTERS RATING	
MAKE	EG4®
MODEL	18KPV-12LV
MAX INPUT CURRENT	25A
MAX POWER (AC)	12000W
NOM. AC VOLTAGE	240V
MAX AC CURRENT	50A
CEC EFFICIENCY	97%

MODULE INFO	
MAKE/MODEL	BLUESUN SOLAR BSM550M10-72HBD 550W
Voc	49.90V
Vmp	41.96V
Isc	14.00A
Imp	13.11A
STC RATING	550W
%Voc/C	-0.275%

WIRE SCHEDULE							
TAG ID	CONDUIT SIZE	NO.	CONDUCTOR	NO.	NEUTRAL	NO.	GROUND
1	NONE	2	HOYMILES CABLE			1	6 AWG SOLID BARE COPPER
2	1.25" PVC	8	10 AWG THWN-2		NONE	1	10 AWG THWN-2
2A	3/4" EMT	4	10 AWG THWN-2		NONE	1	10 AWG THWN-2
3	2" EMT	2	3/0 AWG THWN-2	1	3/0 AWG THWN-2	1	6 AWG THWN-2
4	2.5" EMT	2	600KCMIL	1	600KCMIL	1	2 AWG THWN-2
5	2" EMT	(2) 4/0 AWG BATTERY CABLES					

STRING SPECIFICATION (TOTAL 31 MODULES)						
STRING	NO. OF MODULES	Imp	Vmp	Isc	Voc @ extreme min. temp	Pmax
A	8	13.11A	335.68V	14.00A	455.27V	4400W
B	8	13.11A	335.68V	14.00A	455.27V	4400W
C	7	13.11A	335.68V	14.00A	455.27V	4400W
D	8	13.11A	335.68V	14.00A	455.27V	4400W

BATTERY RATINGS	
MAKE	EG4
MODEL	14.3 kWh POWER PRO
Nominal Voltage:	51.2V
Nominal Capacity:	280Ah
Continuous charge	160A
Continuouse discharge	160A

WIRE SIZE CALCULATIONS									
WIRE RUN	CIRCUIT AMPS (Isc)	**Imax** (required ampacity) Per NEC690.8(A&B) =1.25 X Isc	CONDUCTOR	WIRE AMPACITY (AMPS) @ 90°C	NO. OF CURRENT CONDUCTORS	EXPECTED WIRE TEMPERATURE	TERMINAL TEMP RATING	AMPACITY @ TERMINAL TEMP RATING	DERATED AMPACITY = TEMP. CORRECTION PER TABLE (310.15(B)(2)(a)(TYP.))X CONDUIT FILL CORRECTION PER NEC 310.15(B)(3)(a) X CIRCUIT CONDUCTOR AMPACITY @ 90°C/75°C
PV STRING **A** TO INVERTER	10.61A	10.61 X 1.25 = 13.26A	#10 AWG THWN-2	40A	4-6	39°	75°C	35A	0.91 X 0.8 X 40A = 29.12A > Imax
PV STRING **B** TO INVERTER	10.61A	10.61 X 1.25 = 13.26A	#10 AWG THWN-2	40A	4-6	39°	75°C	35A	0.91 X 0.8 X 40A = 29.12A > Imax
PV STRING **C** TO INVERTER	10.61A	10.61 X 1.25 = 13.26A	#10 AWG THWN-2	40A	4-6	39°	75°C	35A	0.91 X 0.8 X 40A = 29.12A > Imax
PV STRING **D** TO INVERTER	10.61A	10.61 X 1.25 = 13.26A	#10 AWG THWN-2	40A	4-6	39°	75°C	35A	0.91 X 0.8 X 40A = 29.12A > Imax
INVERTER TO POI	50A	50 X 1.25 = 62.50A	#3/0 AWG THWN	225A	1-3	39°	75°C	200A	0.91 X 1.0 X 225A = 204.75A > Imax
BATTERY TO INVERTER	150A	150A	#4/0 AWG THWN	260A	1-3	39°	75°C	230A	0.91 X 1.0 X 260A = 236.6A > Imax

REVISIONS		
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HOME OWNER DETAIL

GREGORY RICKS
8802 QUEENS CT.
COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

17600W DC, 24000W AC

PAPER SIZE
11" x 17"

SHEET NAME
ELECTRICAL

SHEET NUMBER
PV 5.1

⚠ WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
AC & DC DISCONNECT AND SUB PANEL
(PER CODE: NEC 690.13(B))

⚠ 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

LABEL LOCATION:
DC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: [NEC 690.13(B)])

WARNING

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL LOCATION:
AC & DC DISCONNECT AND SUB PANEL
(PER CODE: NEC 690.41(B))

⚠ WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
MAIN SERVICE PANEL & NET METER
(PER CODE: [NEC 705.12(B)(3)]

⚠ WARNING

THE DISCONNECTION OF THE GROUNDED CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE ON THE EQUIPMENT

LABEL LOCATION:
INVERTER
(PER CODE: NEC 690.31(I)

⚠ CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION:
MSP
(PER CODE: NEC 705.12(B)(3))

PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OPERATING CURRENT 50.0 AMPS
AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
AC DISCONNECT & INVERTER
(PER CODE: NEC 690.13(B) AND 690.54)

⚠ WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
SERVICE PANEL IF SUM OF BREAKERS EXCEEDS PANEL RATING
(PER CODE: [NEC 705.12(B)(2)(3)(B)])

WARNING:PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
CONDUIT, COMBINER BOX
(PER CODE: [NEC 690.31(G)(3)]

PHOTOVOLTAIC

AC DISCONNECT

LABEL LOCATION:
AC DISCONNECT/BREAKER/ POINT OF CONNECTION
(PER CODE: NEC 690.13(B)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:
RAPID SHUTDOWN
(PER CODE: NEC 690.56(C)(3)

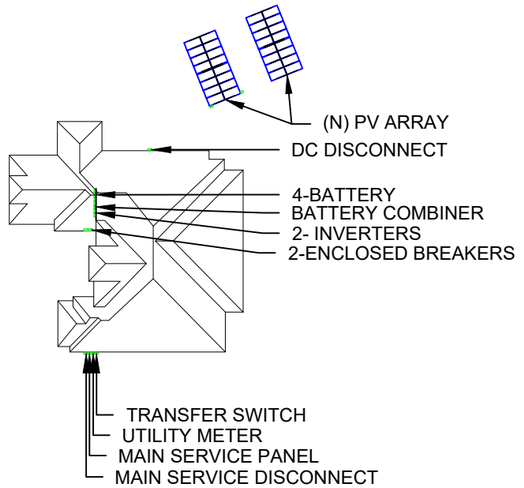
PHOTOVOLTAIC SYSTEM DC DISCONNECT	
OPERATING VOLTAGE	399.2 VDC
OPERATING CURRENT	39.33 AMPS
MAX SYSTEM VOLTAGE	500 VDC
SHORT CIRCUIT CURRENT	42.00 AMPS
CHARGE CONTROLLER MAX	N/A AMPS

LABEL LOCATION:
DC DISCONNECT, INVERTER#
(PER CODE: NEC 690.53)

CAUTION

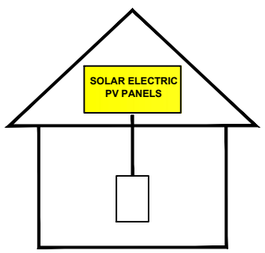
POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN

8802 QUEENS CT.



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
AT RAPID SHUTDOWN SYSTEM
[NEC 690.56(C)(1)(A)]

REVISIONS		
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HOME OWNER DETAIL

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COLLEGE STATION, TX 77845
APN# 021-101-403-000

PV SYSTEM DETAIL

GROUND MOUNT PV SYSTEM
GRID -TIED

17600W DC, 24000W AC

PAPER SIZE
11" x 17"

SHEET NAME
WARNING LABELS

SHEET NUMBER
PV 6.0

BSM550M10-72HBD

Bifacial Dual Glass 530W-550W
LEADING 5%-25% MORE YIELD
EFFICIENCY UP TO 20.9%

- **Made In Thailand**
- **US Local Service/Inventory**
- **Same Day Shipping**

- Dimensions:2285*1134*35mm
- Weight:32.2kg
- Max. System Voltage: 1500 V/DC(IEC)

PERFORMANCE WARRANTY

12 Years — Enhanced Product Warranty on Materials and Workmanship*

30 Years — Linear Power Performance Warranty*
*According to the applicable Bluesun Solar Limited Warranty Statement.

GREAT PERFORMANCE AND RELIABILITY

- Bi-facial Perc Half Cut Technology
- Better Energy Yield
- Power Degradation -0.45%/30 Years Linear Warranty
- TUV SUD Anti PID Certificated
- IP68 Junction Box/High Water Proof Level
- Reduced Hot Spot Risk

MANAGEMENT SYSTEM CERTIFICATES

- ISO 9001: 2015 Quality Management System
- ISO 14001: 2015 Environment Management System
- ISO 45001: 2018 Occupational Health and Safety Management Systems

PRODUCT CERTIFICATES

- IEC 61215 / IEC 61730 / UL 61730

US Warehouse Location: Long Beach, Chicago, New Jersey Etc

ELECTRICAL PARAMETERS

Performance at STC (Power Tolerance 0 ~ +3%)

Maximum Power (Pmax/W)	530	535	540	545	550
Operating Voltage (Vmpp/V)	41.32	41.48	41.64	41.80	41.96
Operating Current (Impp/A)	12.83	12.90	12.97	13.04	13.11
Open-Circuit Voltage (Voc/V)	49.32	49.46	49.60	49.76	49.92
Short-Circuit Current (Isc/A)	13.72	13.79	13.86	13.93	14.00
Module Efficiency ηm(%)	20.5	20.6	20.8	21.0	21.2

Performance at NMOT

Maximum Power (Pmax/W)	395	398	402	406	410
Operating Voltage (Vmpp/V)	38.6	38.7	38.8	39.0	39.1
Operating Current (Impp/A)	10.24	10.30	10.36	10.41	10.47
Open-Circuit Voltage (Voc/V)	46.4	46.5	46.7	46.8	47.0
Short-Circuit Current (Isc/A)	11.06	11.12	11.17	11.23	11.28

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5 NMOT: Irradiance at 800W/m², Ambient Temperatue 20°C, Air Mass AM1.5, Wind Speed 1m/s

Electrical characteristics with different rear side power gain (refer to 530W front)

Pmax gain	Pmax/W	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	557	41.32	13.47	49.32	14.41
10%	583	41.32	14.11	49.32	15.09
15%	610	41.32	14.75	49.32	15.78
20%	636	41.32	15.40	49.32	16.46
25%	663	41.32	16.04	49.32	17.15

MECHANICAL SPECIFICATION

Cell Type	Monocrystalline
Cell Dimensions	182*182mm
Cell Arrangement	144 (6*24)
Weight	32.2kg (71lbs)
Module Dimensions	2285*1134*35mm (89.96*44.65*1.38inches)
Cable Length	Portrait 300mm/Landscape 1200mm/Customized
Cable Cross Section Size	TUV: 4mm² (0.006inches²)/UL: 12AWG
Front Glass	2.0mm (0.08 inches) AR Coating Semi-tempered Glass
Back Glass	2.0mm (0.08 inches) Glazed Semi-tempered Glass
No. of Bypass Diodes	3
Packing Configuration (1)	31pcs/carton, 620pcs/40hq
Packing Configuration (for USA)	31pcs/carton, 558pcs/40hq
Frame	Anodized Aluminium Alloy
Junction Box	IP68

OPERATING CONDITIONS

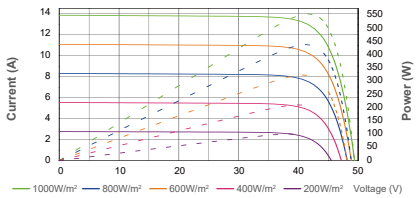
Maximun System Voltage	1500V/DC(IEC)
Operating Temperature	-40°C ~ +85°C
Maximun Series Fuse	30A
Static Loading	Snow Loading: 5400Pa/ Wind Loading: 2400Pa
Conductivity at Ground	≤0.1Ω
Safety Class	II
Resistance	≥100MΩ
Connector	T01/LJQ-3-CSY/MC4/MC4-EVO2
Backside Output Ratio* *Under STC: Backside Output Ratio = $P_{max(rear)}$ /$P_{max(front)}$	70%±5%

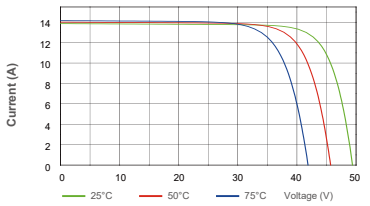
TEMPERATURE COEFFICIENT

Temperature Coefficient Pmax	-0.35%/°C
Temperature Coefficient Voc	-0.26%/°C
Temperature Coefficient Isc	+0.048%/°C
NMOT	43±2°C

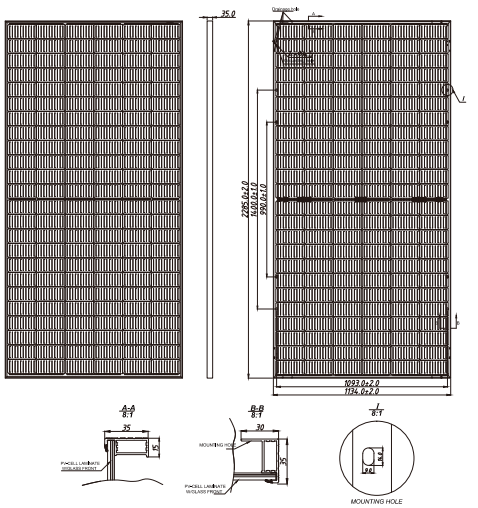
I-V CURVE

BSM550M10-72HBD





TECHNICAL DRAWINGS



US Warehouse Location: Long Beach, Chicago, New Jersey Etc

EG4® 18KPV-12LV

Hybrid Inverter/Charger

The EG4® 18KPV is a 48V split phase, hybrid inverter/charger capable of utilizing 18kW of PV and efficiently outputting 12kW of power while charging your battery bank. You can parallel up to 10 units for 120kWs of AC power and control multiple stations and units using the new EG4® monitoring software.

AC Coupling Capability	Remote Adjustments via EG4® Software	10-Year Warranty

All-In-One Hybrid Inverter

Capable of running entirely off the grid, using grid electricity, or selling power back to the grid.

600VDC Max

The extra high voltage enables lower cable sizing for the 3 MPPTs and a maximum recommended PV input of 21,000W. Eliminating the need for a combiner box.

Mountable Wi-Fi Device

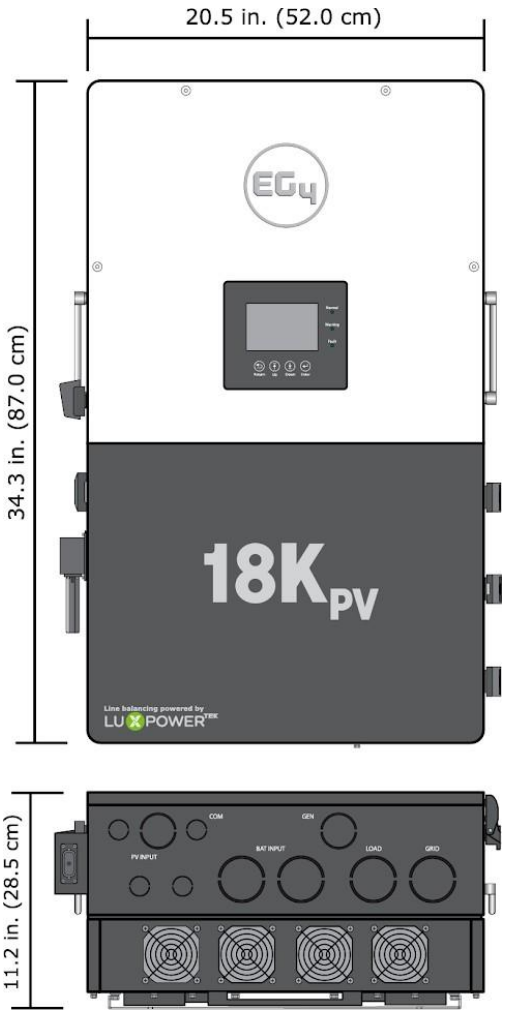
Enables wireless connection between our new monitoring platform and the 18KPV through the app or online website.

Closed-Loop Communications

Able to communicate with EG4® 48V batteries and other battery brands.

High Frequency, Split Phase Output

Allows for 120/240V with a single unit or 120/208VAC service operation.



Ver. 1.2.0 | Specifications subject to change without notice.
www.eg4electronics.com

EG4® 18KPV-12LV

Hybrid Inverter/Charger

AC Input Data	
Nominal AC Voltage	240 | 208VAC
Frequency	50/60Hz
Max. Continuous AC Current	50A
AC Grid Output Data	
Max. Continuous Output Current	50A
AC Bypass (Grid)	200A
Rated Voltage	240VAC
Operating Voltage Range	180–270VAC
Nominal Power Output (W)	@240V 12kW/@208V 10.4kW
Operating Frequency	50/60Hz
Phase Shift	0.99@ full load
Reactive Power Adjust Range	(-0.8) – (+0.8) leading adjustable
Sync Inrush Current	35A
Backup/UPS AC Output Data	
Rated Output Current (240V/208V)	50A
AC Bypass (Generator)	90A
Nominal Output Voltage (V)	240 | 120/240 | 120/208 VAC
Rated Output Power (W)	@240VAC 12kW/@208VAC 10.4kW
Max Cont. Line Wattage	8kW per 120V
Peak Power (W)	With PV: 14.7kW (10 min), 15.5kW (5 min) Without PV: 13.5kW (10 min)
Operating Frequency	50/60Hz
THDV (Total Harmonic Distortion Voltage)	<5%
Switching Time	<20ms
PV Input Data	
Number of MPPTs	3
Inputs per MPPT	2/1/1
Max. Usable Input Current	25/15/15A
Max. Short Circuit Input Current	31/19/19A
DC Input Voltage Range	100–600 VDC
Unit Startup Voltage	100 VDC
Load Output Minimum Voltage	>140 VDC
MPP Operating Voltage Range	120–500 VDC
Full Power MPPT Voltage Range	230–500 VDC
Nominal MPPT Voltage	360 VDC
Maximum Utilized Solar Power	18kW
Recommended Maximum Solar Input	21kW

EG4® 18KPV-12LV

Hybrid Inverter/Charger

Efficiency	
Max. Efficiency @ PV to Grid	97.5%
Max. Efficiency @ Battery to Grid	94%
MPPT Efficiency	99.9%
Battery Charging Efficiency	95%
Battery Discharging Efficiency	94.5%
Idle Consumption (Normal mode)	≈70W
Idle Consumption (Standby mode)	≈18W
Battery Data	
Type	Lead-acid battery/Lithium battery
Max. Charge/ Discharge Current	250A
Nominal Voltage	48 VDC
Voltage Range	40–60 VDC
General Data	
Integrated Disconnect	DC switch
PV Reverse Polarity Protection	Yes
DC Switch Rating for each MPPT	Yes
Output Over-Voltage Protection Varistor	Yes
Output Over-Current Protection	Yes
Grid Monitoring	Yes
Anti-islanding Protection (Fast Zero Export)	Yes
Pole Sensitive Leakage Current Monitoring Unit	Yes
Surge Protection Device	Yes
Dimensions H×W×D	34.3×20.5×11.2 in. (87×52×28.5 cm)
Weight	121.25 lbs (55kg) 132.28 lbs (60kg) with the packaging
Cooling Concept	Fan
Topology	TL (Transformerless)
Relative Humidity	0-100%
Altitude	<2,000m
Operating Temperature Range	-25~60°C, >45° derating
Noise Emission	68dB @3ft
Display	Color touchscreen
Communication Interface	RS485/Wi-Fi/CAN
Standard Warranty	10* year standard warranty
	*See EG4® Warranty Registration for terms and conditions

EG4® 18KPV-12LV

Hybrid Inverter/Charger

Standards and Certifications	
Safety	
UL1741SB Rule 21	Yes
Rapid Shut Down (RSD) NEC 2020:690.12	Yes
Arc-Fault Circuit Interrupter (AFCI) NEC 2020:690.11 / UL1699B	Yes
Ground Fault Monitoring (GFDI) NEC 2020:690.41(B)	Yes
CSA 22.2.107.1	Yes
CSA 22.2.330	Yes
Grid Connection	
IEEE 1547.1:2020; IEEE 1547:2018	Yes
Hawaii Rule 14H	Yes
California Rule 21 Phase I, II, III	Yes
EMC	
FCC Part 15 Class B	Yes
Outdoor Rating	
NEMA 4X / IP65	Yes

EG4® 14.3kWh PowerPro WallMount All Weather Battery

Built-In 200A BMS	51.2V 280Ah (48V Nominal)	10 Year Warranty >8000 Cycles at 80% DOD	82.6MWh Lifetime Production*

On-Board LCD Touch Screen

Easy to see BMS monitoring, and selectable closed-loop communications with EG4, Schneider, Solark, Victron, Growatt, Megarevo, Luxpower, and Deye inverters.

Dual On-Board Fire Arrestors

Offer fail-safe protection against thermal runaway.

Quick Connect Battery Cables

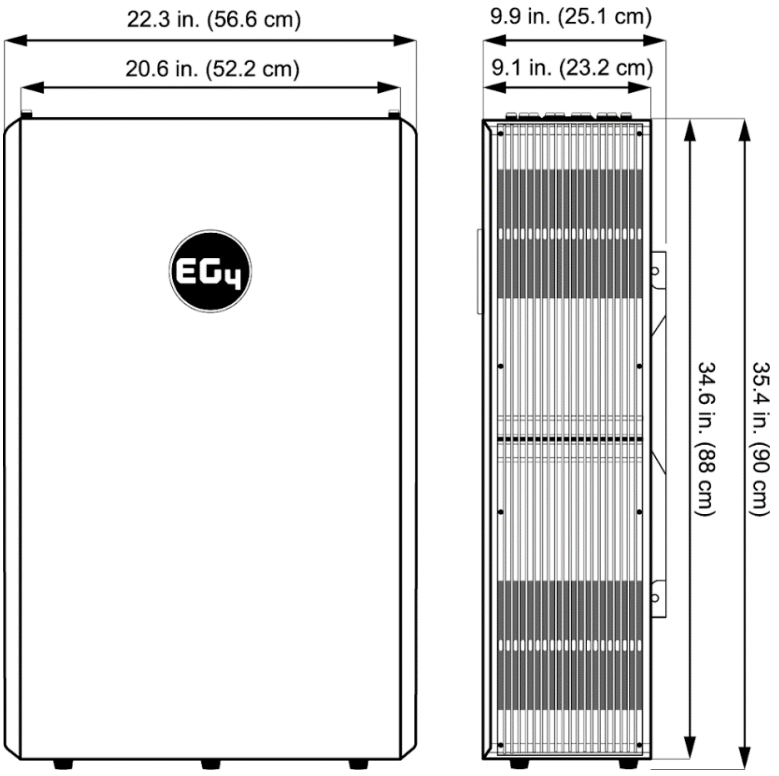
Included battery cables with Amphenol connectors (or SurLok equivalent) allow for fast, safe, and reliable battery connections.

Integrated Self-Heating Feature

Heats the battery when the ambient temperature is low. A key feature for outdoor $LiFePO_4$ battery cell operation.

Innovative Emergency Stop Function

The optional ESS disconnect can shut down all batteries and inverters (if equipped with rapid shut down capability) with the push of a single button.



The perfect partner to the EG4® 18kPV

The optional conduit box mates directly up to the connection ports of the 18kPV inverter cable box for sleek installation. For other inverters or stand-alone battery installation, the included conduit box plugs should be installed.

Module Operating Parameters			
Parameter	**BMS**	**Recommended Charger Settings**	
Total Energy Capacity	14.3kWh @25C, 100% state of charge		
Voltage	51.2V	–	
Capacity	280Ah ±2%	@25°C ±2°C @ 0.5C	
Charging Voltage (Bulk/Absorb)	56.0V (+/-0.8V)	56.2V (+/-0.2V)	
Float	–	54V (+/-0.2V)	
Low DC Cutoff	44.8V	47-45.6V (start high, lower as needed)	
Charging Current	100/140/200A (Max. continuous)✱ *(see note below table)*	60A - 160A	
Discharging Current	200A (Max. continuous)	160A	
Environmental Parameters			
Charging Range	32° to ≈113°F (0°C to ≈45°C)		
Discharging Range	-4°F to ≈122°F (-20°C to ≈50°C)		
Storage Range	-4°F to ≈122°F (-20°C to ≈50°C)		
Ingress Protection	IP65		
Charging/Discharging Parameters			
Charge	**Spec**	**Delay**	**Recovery**
Cell Voltage Protection	3.8V	1 sec	3.45V
Module Voltage Protection	60.0V	1 sec	55.2V
Over Charging Current 1	>205A	10 sec	–
Over Charging Current 2	>225A	3 sec	–
Temperature Protection	<23°F or >158°F <-5°C or >70°C	1 sec	>32°F or <140°F >0°C or <60°C
Discharge	**Spec**	**Delay**	**Recovery**
Cell Voltage Protection	2.3V	1 sec	3.1V
Module Voltage Protection	44.8V	1 sec	48V
Over-Charging Current 1	>205A	10 sec	60 sec
Over-Charging Current 2	>300A	3 sec	60 sec
Short Circuit	>600A	<0.1 mS	–
Temperature Protection	<-4°F or >167°F <-20°C or >75°C	1 sec	>14°F or <149°F >-10°C or <65°C
PCB Temp Protection	>230°F (>110°C)	1 sec	@ <176°F (<80°C)

General Specifications		
Parameter	**Spec**	**Condition**

Cell Balance	120mA	Passive Balance	Cell Voltage Difference >40mV
Temperature Accuracy	3%	Cycle Measurement	Measuring Range -40°F to ≈212°F (-40°C to ≈100°C)
Voltage Accuracy	0.5%	Cycle Measurement	For Cells & Module
Current Accuracy	3%	Cycle Measurement	Measuring Range -200A - 200A
SOC	5%	–	Integral Calculation
Power Consumption	Sleep & Off Mode	<300uA	Storage/Transport/Standby
Power Consumption	Operating Mode	<25mA	Charging/Discharging
Communication Ports	RS485/CAN		Can be customized
Battery Heater Specifications			
Parameter	**Spec**		**Condition**
Voltage	56V		–
Power Consumption	224W		–
Internal Battery Temperature	≤32°F (0°C)/≥41°F (5°C)		Heat On/Heat Off
Physical Specifications			
Dimensions (H×W×D)	34.6 in.×22.3 in.×9.1 in. (88.0 cm×56.6 cm×23.2 cm)		
Weight	308.6 lbs. (140 kg) +/-1kg		
Design Life	>15 Years		
Cycle Life	>8000 Cycles, 0.5C 80% DOD		
Lifetime Production	82.6MWh*		

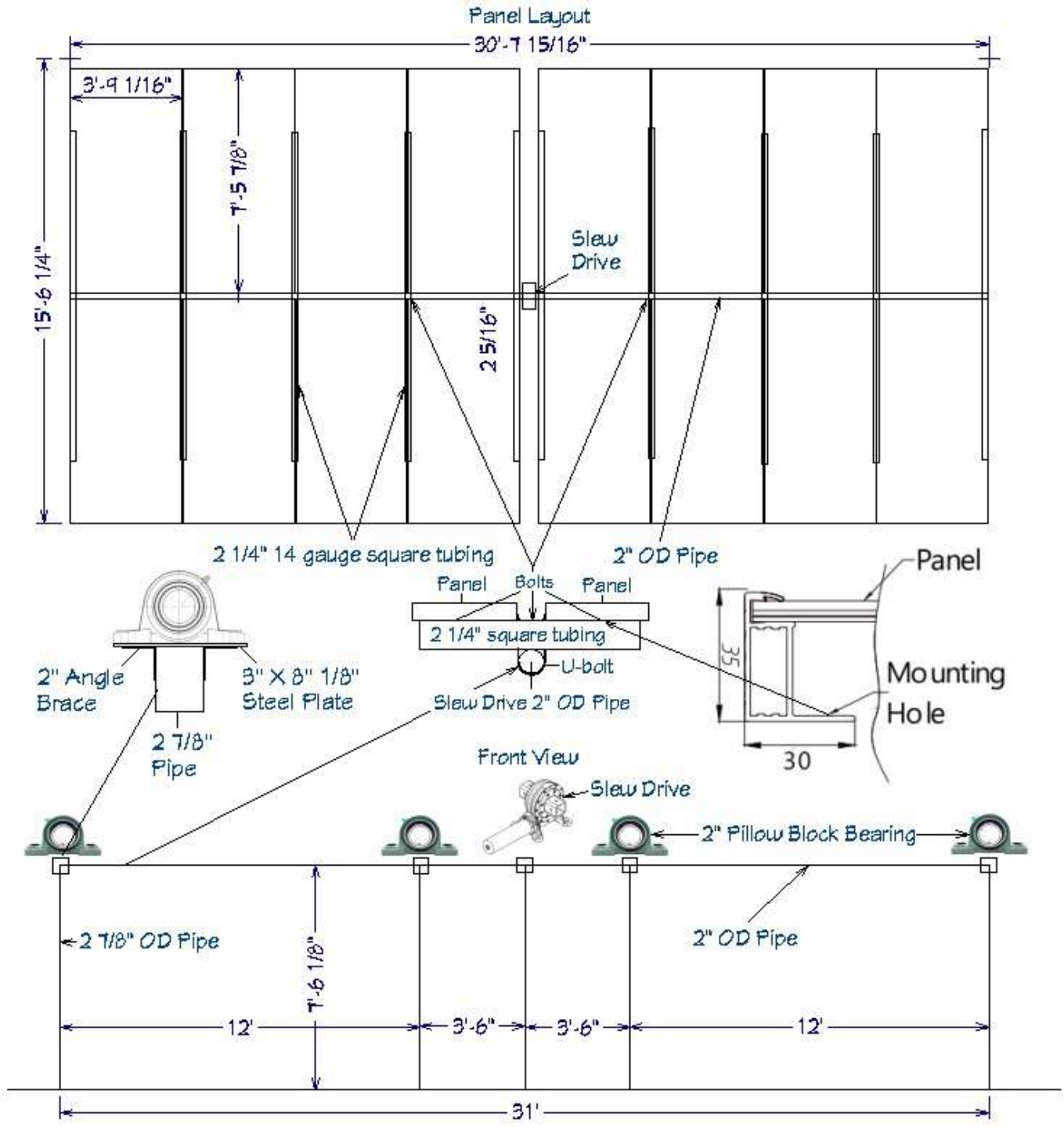
*(51.2V×280Ah/1000×80%×8000 cycles/1000)90%=MWh

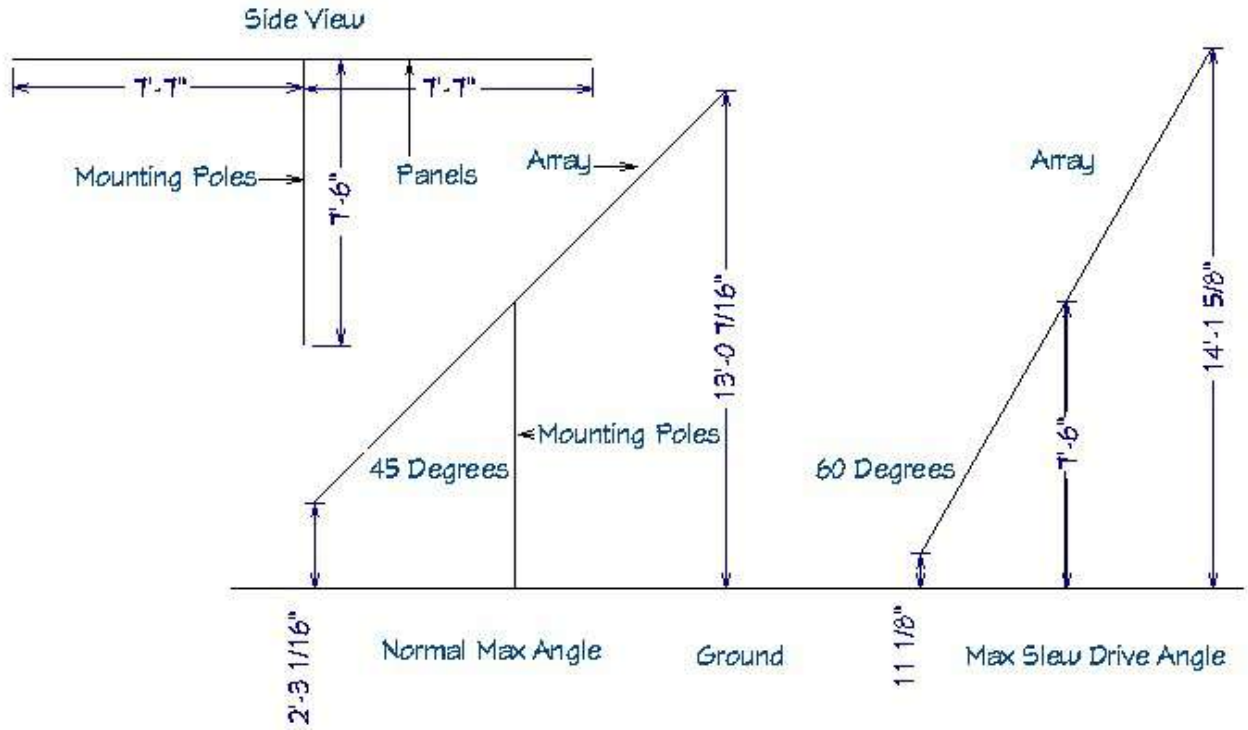
✱*Note: The default BMS in the module allows for 100A charging current maximum. To achieve higher charging currents, please contact your distributor for optional firmware files, or navigate to https://eg4electronics.com/downloads/ for the most up to date firmware.*

Please also make note that if the battery firmware is updated to allow 200A maximum charge, the internal thermal sensors will throttle the charge current to what the BMS deems necessary to prevent overheating.

Scan the QR code for the most recent version of the unit's **manual!**

Scan the QR code for the most recent version of the unit's **spec sheet!**


Panel Layout
30'-7 15/16"
3'-9 1/16"
7'-5 7/8"
15'-6 1/4"
Slew Drive
2 5/16"
2 1/4" 14 gauge square tubing
2" OD Pipe
Panel
Bolts
Panel
2 1/4" square tubing
U-bolt
Slew Drive 2" OD Pipe
2" Angle Brace
3" X 8" 1/8" Steel Plate
2 7/8" Pipe
35
Panel
Mounting Hole
30
Front View
Slew Drive
2" Pillow Block Bearing
2 7/8" OD Pipe
7'-6 1/8"
2" OD Pipe
12'
3'-6"
3'-6"
12'
31'


Side View
7'-7"
7'-7"
Mounting Poles
7'-6"
Panels
Array
13'-0 7/16"
Mounting Poles
45 Degrees
2'-3 1/16"
Normal Max Angle
Ground
Array
14'-1 5/8"
7'-6"
60 Degrees
11 1/8"
Max Slew Drive Angle