

**PHOTOVOLTAIC SYSTEM SPECIFICATIONS:**

SYSTEM SIZE: 7,200W DC  
15,000W AC  
MODULE TYPE & AMOUNT: (16) BOVIET BVM6612M-450S-H-HC-BF-DG  
MODULE DIMENSIONS: (L/W/H) 84.06"/41.19"/1.38"  
INVERTER: (1) EG4 12000XP OFFGRID INVERTER  
OPTIMIZER: (16) TIGO TS4-A-0  
INTERCONNECTION METHOD: FULL HOME BACKUP  
AHJ: COUNTY OF COLUMBIA

**GOVERNING CODES**

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES

- a. 2020 NATIONAL ELECTRICAL CODE
- b. 2023 FL BUILDING CODE - 8TH EDITION
- c. 2023 FL RESIDENTIAL CODE - 8TH EDITION
- d. 2021 INTERNATIONAL RESIDENTIAL CODE
- e. 2023 FL PLUMBING CODE - 8TH EDITION
- f. 2023 FL MECHANICAL CODE - 8TH EDITION
- g. 2023 FL FIRE PREVENTION CODE - 8TH EDITION
- h. COUNTY OF COLUMBIA CODE
- i. ANY OTHER LOCAL AMENDMENTS

**GENERAL NOTES:**

1. APPLICABLE CODE: 2023 FLORIDA BUILDING CODE (8TH EDITION) & ASCE 7-22 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.
2. LAG SCREW DIAMETER AND EMBEDMENT LENGTHS ARE DESIGNED PER 2023 FLORIDA BUILDING CODE (8TH EDITION) REQUIREMENTS. ALL BOLT CAPACITIES ARE BASED ON A SOUTHERN YELLOW PINE (SYP) RESIDENTIAL WOOD ROOF RAFTERS AS EMBEDMENT MATERIAL.
3. ROOF SEALANTS SHALL CONFORM TO ASTM C920 AND ASTM 6511, AND IS THE RESPONSIBILITY OF THE CONTRACTOR TO PILOT DRILL AND FILL ALL HOLES.
4. ALL DISSIMILAR MATERIALS SHALL BE SEPARATED WITH NEOPRENE WASHERS, PADS, ETC OR SIMILAR.
5. ALL ALUMINIUM COMPONENTS SHALL BE ANODIZED ALUMINIUM 6105-T5 UNLESS OTHERWISE NOTED.
6. ALL LAG SCREW SHALL BE ASTM A276 STAINLESS STEEL UNLESS OTHERWISE NOTED.
7. ALL SOLAR RAILING AND MODULES SHALL BE INSTALLED PER MANUFACTURER INSTRUCTIONS.
8. CONTRACTOR SHALL ENSURE ALL ROOF PENETRATIONS TO BE INSTALLED AND SEALED PER 2023 FLORIDA BUILDING CODE (8TH EDITION) OR LOCAL GOVERNING CODE.



1 PLOT PLAN  
A-00



**SHEET INDEX:**

- A-00: COVER SHEET
- A-01: SITE PLAN
- E-01: 3-LINE DIAGRAM
- E-02: ELECTRICAL NOTES
- E-03: WARNING LABELS

**BILL OF MATERIALS**

Group	QUANTITY	DESCRIPTION
ELECTRICAL	16	TIGO TS4-A-0 OPTIMIZER
ELECTRICAL	1	EG4 12000XP OFF-GRID INVERTER
ELECTRICAL	1	EG4 GRIDBOSS
ELECTRICAL	3	EG4 POWERPRO BATTERY
ELECTRICAL	1	200A MAIN BREAKER
ELECTRICAL	1	80A BREAKER
ELECTRICAL	1	100A NON FUSED DISCONNECT

**PHOTOVOLTAIC ROOF MOUNT SYSTEM**  
16 MODULES-ROOF MOUNTED - 7,200W DC, 15,000W AC

ENLIGHT ENERGY  
978 SW 2ND AVE  
GAINESVILLE, FL 32607  
800-798-0315  
LIC#: EC130121251

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT NAME: **TRENT REICHARDT**

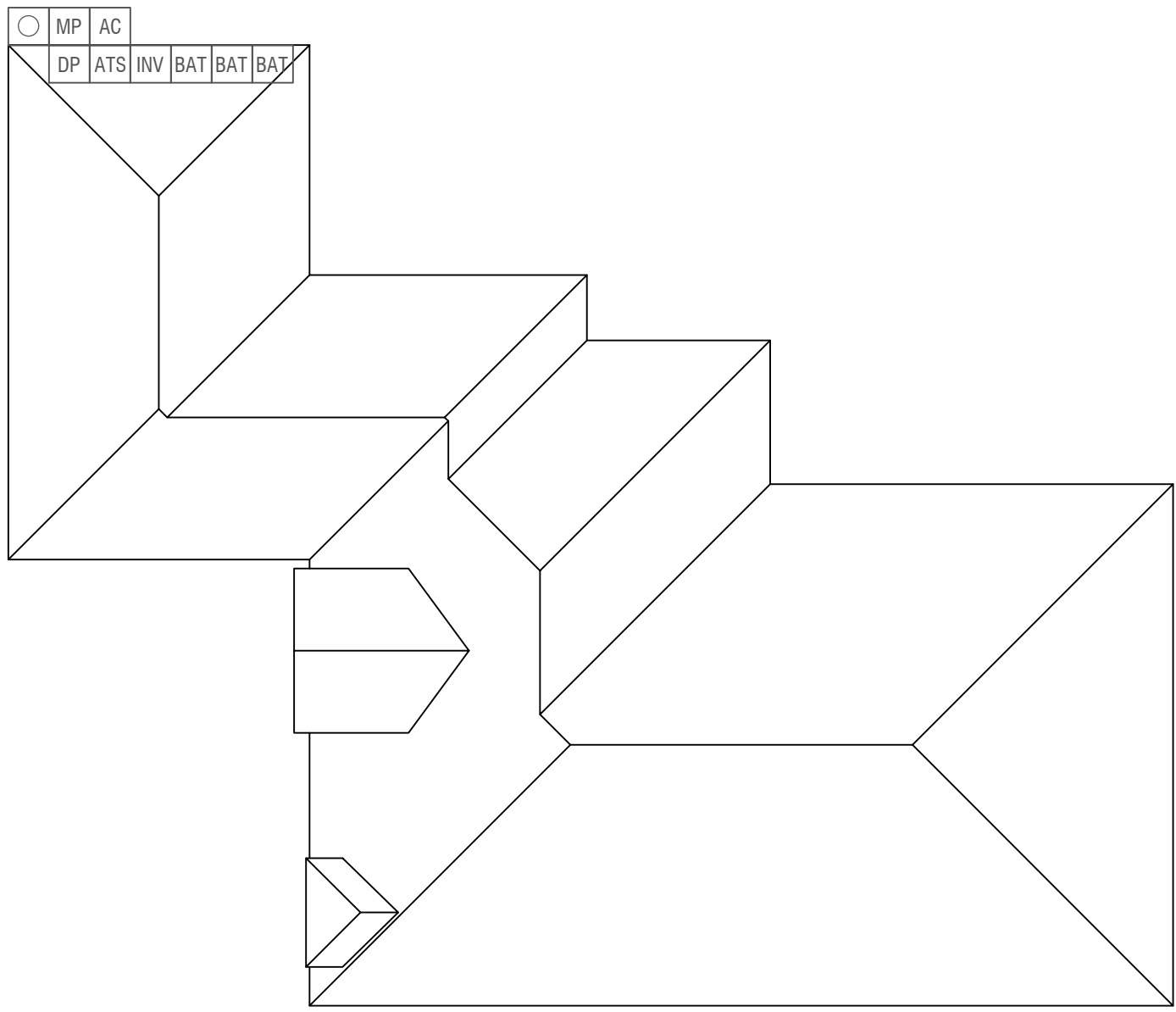
PROJECT ADDRESS: 159 SW SYDNEY NICOLE CT, LAKE CITY, FL 32024

SHEET NAME: COVER SHEET

SHEET NUMBER: A-00

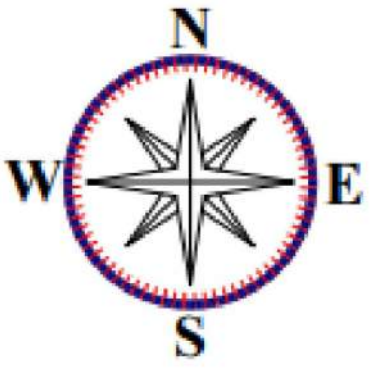
SHEET SIZE: ANSI B 11"x17"

**SW SYDNEY NICOLE CT**  
**FRONT OF HOME**



**GENERAL NOTES FIRE SAFETY NOTES:**  
 ROOF ACCESS POINTS SHALL BE DEFINED AS AREAS WHERE FIRE DEPARTMENT LADDERS ARE NOT PLACED OVER OPENINGS (WINDOWS OR DOORS), ARE LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION, AND ARE IN LOCATIONS WHERE THEY WILL NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS (TREE LIMBS, WIRES, OR SIGNS).

· CABLES, WHEN RUN BETWEEN ARRAYS, SHALL BE ENCLOSED IN CONDUIT.



**SYSTEM LEGEND**

- EXISTING UTILITY METER
- MP EXISTING MAIN SERVICE PANEL
- AC NEW PHOTOVOLTAIC UTILITY DISCONNECT SWITCH. LOCATED WITHIN 10' OF METER.
- INV NEW EG4 12000X0 OFF-GRID INVERTER
- ATS NEW EG4 GRID BOSS MICRO-GRID INTERCONNECTION DEVICE
- BAT NEW EG4 GRID 14.3KWH POWERPRO BATTERY
- DP EXISTING DISTRIBUTION PANEL

ENLIGHT ENERGY  
 978 SW 2ND AVE  
 GAINESVILLE, FL 32607  
 800-798-0315  
 LIC#: EC130121251

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT NAME: **TRENT REICHARDT**

PROJECT ADDRESS: **159 SW SYDNEY NICOLE CT, LAKE CITY, FL 32024**

SHEET NAME: **SITE PLAN**

SHEET NUMBER: **A-01**      SHEET SIZE: **ANSI B 11"x17"**

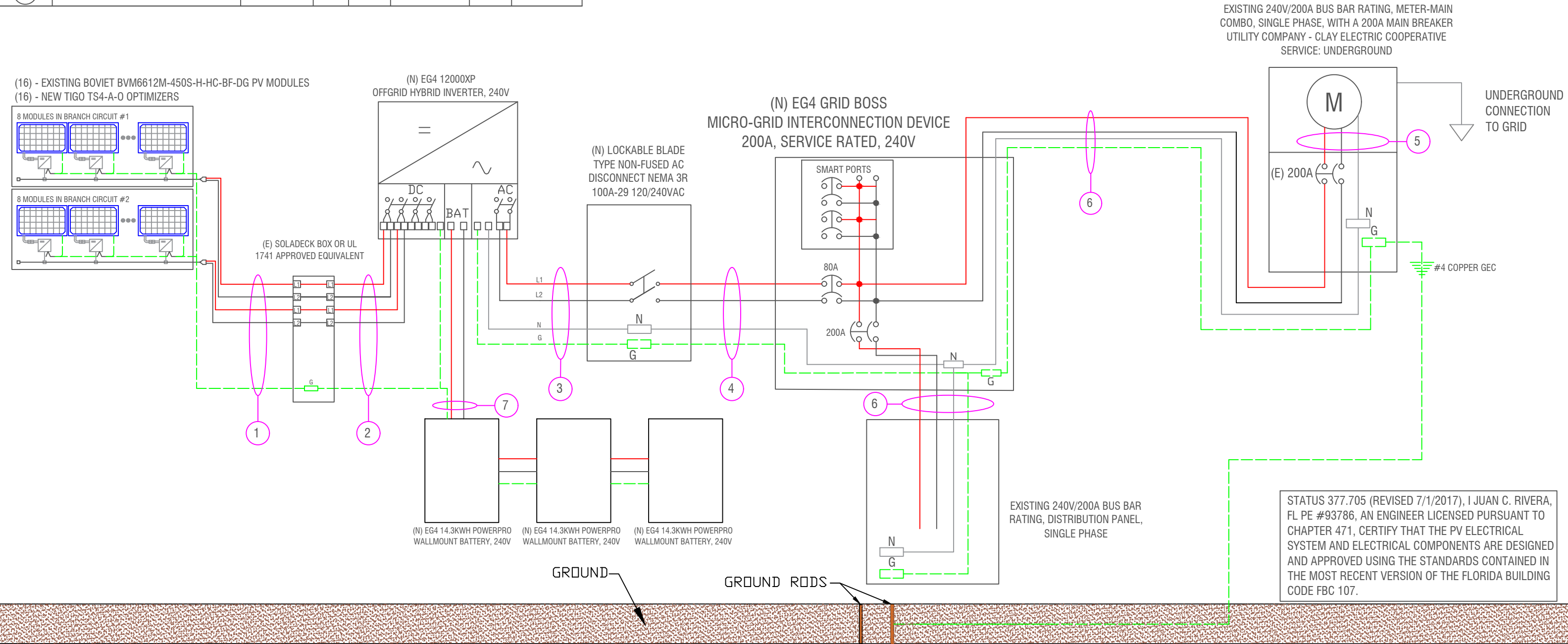
WIRE TAG #	WIRE FROM --	CONDUIT (TBD ON SITE)	WIRE QTY	WIRE GAUGE	WIRE RATING	GRND SIZE	GRND WIRE TYPE
1	ARRAY TO JUNCTION BOX	EMT TYP	4	#10	PV WIRE	#8	PV WIRE
2	JUNCTION BOX TO INVERTER	EMT TYP	4	#10	PV WIRE	#8	PV WIRE
3	INVERTER TO AC DISCONNECT	MIN 1" CONDUIT	3	#4	THHN	#8	THWN-2
4	AC DISCONNECT TO GRID BOSS	MIN 1" CONDUIT	3	#4	THHN	#8	THWN-2
5	SERVICE WIRES	N/A	3	#4/0 AL	THHN	N/A	N/A
6	FEEDER WIRES	MIN 2" CONDUIT	3	#4/0 AL	THHN	#6	THWN-2
7	BATTERY TO INVERTER	MIN 1.5" CONDUIT	2	#2/0	THHN	#6	THWN-2

SYSTEM DATA	
# STRINGS:	2
LARGEST STRING:	8
TOTAL MODULES:	16
TOTAL INVERTERS:	1
SYSTEM RATINGS:	7,200W DC STC
	15,000W AC STC
TOTAL AC OUPUT:	62.5A

INVERTER OUTPUT	INVERTER QTY	NOC	NECS	AMPS	OCF	WIRE GAUGE
TOTAL OUTPUT	1	x	62.5	x	1.25	= 78.13A
					80A	#4

**METAL CONDUIT IS REQUIRED FOR DC CONDUCTORS THAT ARE RUN INTERIOR OF BUILDING**

GROUNDING CONDUCTOR TO BE PROTECTED #8 AWG OR TO BE UNPROTECTED #6 AWG 250.64(B) 250.66 & 250.120(C)



EXISTING 240V/200A BUS BAR RATING, METER-MAIN COMBO, SINGLE PHASE, WITH A 200A MAIN BREAKER  
UTILITY COMPANY - CLAY ELECTRIC COOPERATIVE  
SERVICE: UNDERGROUND

STATUS 377.705 (REVISED 7/1/2017), I JUAN C. RIVERA, FL PE #93786, AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE FBC 107.

ENLIGHT ENERGY  
978 SW 2ND AVE  
GAINESVILLE, FL 32607  
800-798-0315  
LIC#: EC130121251

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT NAME: **TRENT REICHARDT**

PROJECT ADDRESS: **159 SW SYDNEY NICOLE CT, LAKE CITY, FL 32024**

SHEET NAME: **3-LINE DIAGRAM**

SHEET NUMBER: **E-01**

SHEET SIZE: **ANSI B 11"x17"**

**ELECTRICAL NOTES:**

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
3. WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10. UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
11. WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC ARTICLE 110.26.
12. ALL EQUIPMENT INSTALLED SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) PER NEC ARTICLE 110.3.
13. RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
14. ALL LABELS OR MARKINGS SHALL BE VISIBLE AFTER INSTALLATION. THE LABELS SHALL BE REFLECTIVE, AND ALL LETTERS SHALL BE CAPITALIZED AND SHALL BE A MINIMUM HEIGHT OF 9.5 MM (3/8 IN) IN WHITE ON A RED BACKGROUND.
15. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 310.10.
16. CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE I WET LOCATIONS PER NEC ARTICLE 310.10.
17. ALL EXTERIOR EQUIPMENT IS A MINIMUM OF NEMA-R3 RATED.
18. ALL ELECTRICAL EQUIPMENT WILL BE LOCATED AT OR ABOVE BFE+1' OR 8.00' NAVD.
19. SMOKE ALARMS PER F.S. 553.883.
20. GROUNDING WILL BE IN COMPLIANCE WITH NEC 2020.
21. SYSTEM MEETS THE GROUNDING REQUIREMENTS OF NEC 2020
22. GROUND RODS WILL BE AT LEAST 8' LONG AND 5/18" IN DIAMETER (NEC 250.52(A)(5)).
23. SYSTEM MEETS THE REQUIREMENTS OF NEC 2020.
24. SUPPLEMENTAL ELECTRODES WILL BE ADDED IF REQUIRED.

INVERTER OUTPUT CIRCUIT		
TO OVERCURRENT PROTECTION DEVICE		
DESIGN TEMPERATURE (°F)	94	
MAXIMUM AMBIENT TEMPERATURE RANGE (°F)	87-95	310.15(B)
TEMPERATURE RATING OF CONDUCTOR	75°C	
# OF CARRYING CONDUCTORS	<4	310.15(C)(1)
AC MAX OUTPUT CURRENT	62.5A	690.8(A)(3)
AC MAX OUTPUT CURRENT * 1.25%	78.13A	690.8(B)
OVERCURRENT PROTECTION (A)	80A	
AMBIENT TEMPERATURE CORRECTION FACTOR	0.94	310.15(B)
CONDUCTOR ADJUSTMENT FACTOR	100%	310.15(B)
CONDUCTOR GAUGE (AWG)	4	310.16
CONDUCTOR ALLOWABLE AMPACITY (AMPS)	85	
CONDUCTOR ADJUSTED AMPACITY (AMPS)	79.9	85*.94*1 = 79.9



REVISIONS		
DESCRIPTION	DATE	REV

PROJECT NAME:	<b>TRENT REICHARDT</b>
PROJECT ADDRESS:	159 SW SYDNEY NICOLE CT, LAKE CITY, FL 32024

SHEET NAME:		ELECTRICAL NOTES
SHEET NUMBER:	SHEET SIZE:	
E-02	ANSI B 11"x17"	

**WARNING**  
ELECTRICAL SHOCK HAZARD

DO NOT TOUCH TERMINALS.  
TERMINALS ON LINE AND LOAD MAY  
BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:  
INVERTER(S), AC DISCONNECT(S), AC  
COMBINER PANEL (IF APPLICABLE).

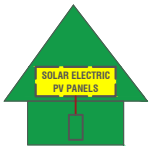
**WARNING**  
PHOTOVOLTAIC SYSTEM  
COMBINER PANEL

DO NOT ADD LOADS

LABEL LOCATION:  
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).

**EMERGENCY RESPONDER  
THIS SOLAR PV SYSTEM IS  
EQUIPPED WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN  
SWITCH TO THE "OFF"  
POSITION TO SHUTDOWN  
ENTIRE PV SYSTEM



**NOTES AND SPECIFICATIONS:**

- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE NEC 2020, UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED, OR IF REQUESTED BY THE LOCAL AHJ.
- SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
- LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
- LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
- DO NOT COVER EXISTING MANUFACTURER LABELS.

**WARNING**  
THREE POWER SOURCES

SOURCES: UTILITY GRID, BATTERY  
AND PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:  
UTILITY SERVICE METER AND MAIN SERVICE  
PANEL.

**WARNING**  
INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS  
OVERCURRENT DEVICE

LABEL LOCATION:  
ADJACENT TO PV BREAKER (IF APPLICABLE).

**WARNING: PHOTOVOLTAIC  
POWER SOURCE**

LABEL LOCATION:  
INTERIOR AND EXTERIOR DC CONDUIT EVERY 10 FT, AT EACH  
TURN, ABOVE AND BELOW PENETRATIONS, ON EVERY JB/PULL  
BOX CONTAINING DC CIRCUITS.

**ON-SITE GENERATION  
UTILITY DISCONNECT  
SWITCH**

LABEL LOCATION:  
AC DISCONNECT

**WARNING**  
IN CASE OF EMERGENCY, CONTACT:  
ENLIGHT ENERGY  
PH. NO. 800-798-0315

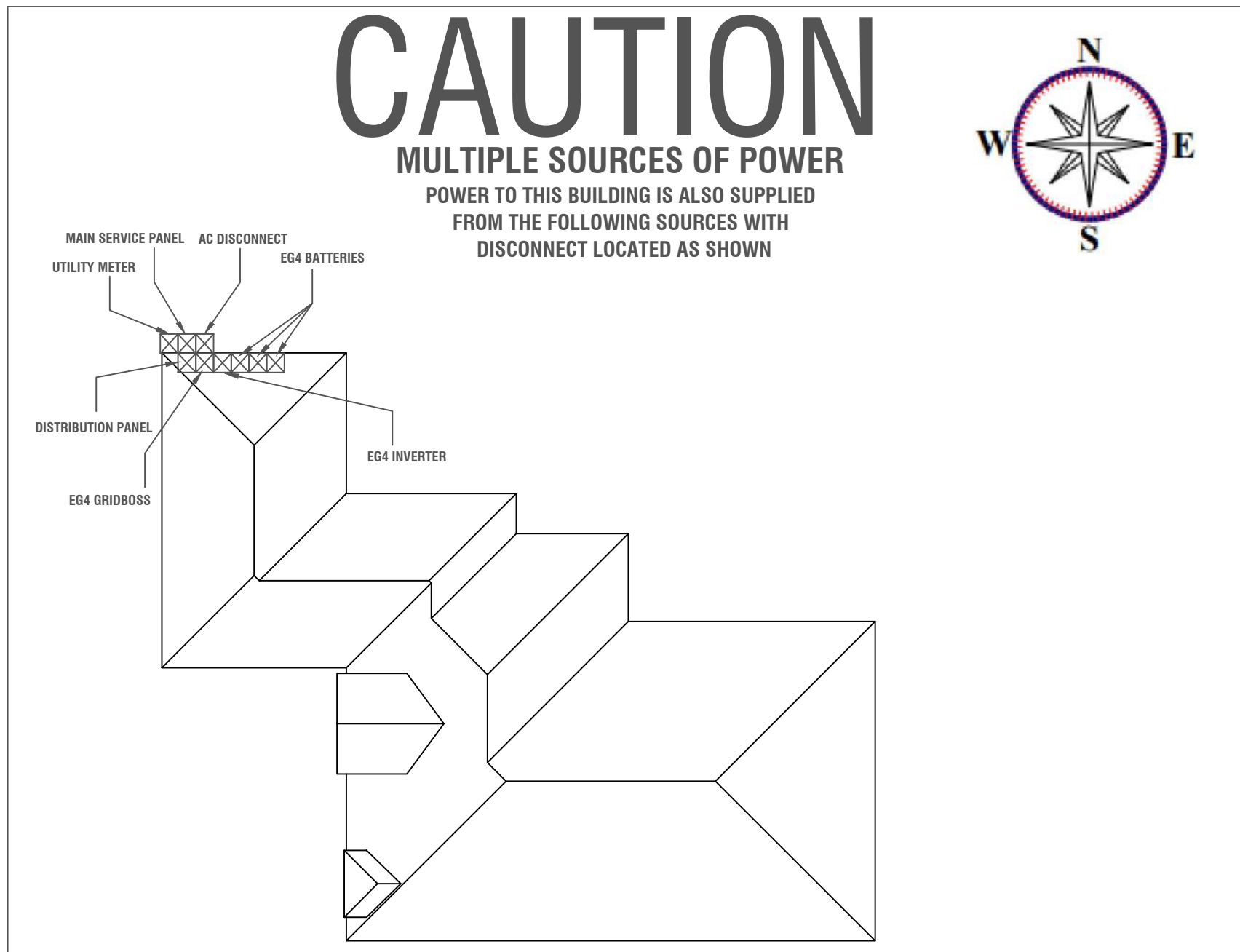
LABEL LOCATION:  
MAIN DISCONNECT

**RAPID SHUTDOWN SWITCH FOR  
SOLAR PV SYSTEM**

LABEL LOCATION:  
RSD SWITCH

**PHOTOVOLTAIC AC DISCONNECT**  
MAXIMUM AC OPERATING CURRENT: 62.5 AMPS  
NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:  
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF  
INTERCONNECTION.




ENLIGHT ENERGY  
978 SW 2ND AVE  
GAINESVILLE, FL 32607  
800-798-0315  
LIC#: EC130121251

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT NAME: **TRENT REICHARDT**

PROJECT ADDRESS: 159 SW SYDNEY NICOLE CT, LAKE CITY, FL 32024

SHEET NAME: **WARNING LABELS**

SHEET NUMBER: E-03

SHEET SIZE: ANSI B 11"x17"

February 27, 2026

Columbia County Building & Zoning

135 NE Hernando Ave # 21

Lake City, FL 32055

RE: Solar PV System

Trent Reichardt

159 SW Sydney Nicole Ct

Lake City, FL 32024

Dear Plans Reviewer,

Consider this as a statement by Juan C. Rivera, P.E, regarding the project referenced above.

The proposed permit above will be adding three EG4 PowerPro Batteries for a full home backup. Based on my evaluation, the existing electrical is up to code and the proposed battery add-on complies with NEC2020 and all other local codes. The contractor is responsible for installing the solar system according to the manufacturer's recommendations and instructions.

Please feel free to contact me at 813-334-5530 if you have any questions or require any further information.

Regards,

Juan C. Rivera, P.E

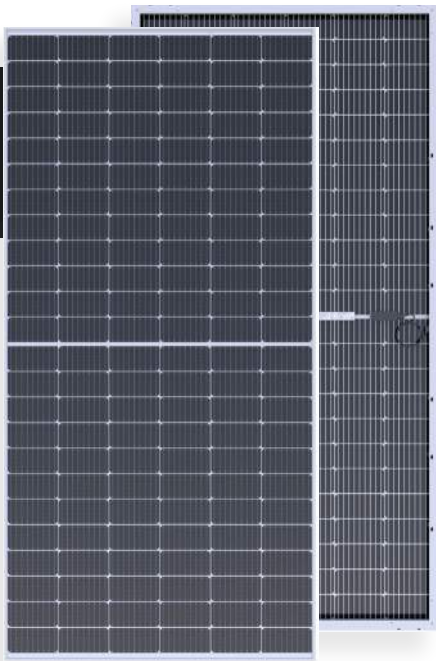
FL PE #93786

7803 SW 102<sup>nd</sup> Lane

Miami, FL 33156

813-334-5530

# VEGA SERIES™



## UTILITY SCALE SOLAR MONO | BIFACIAL | PERC | PV MODULE

**Power Range:** 440W | 445W | 450W  
**Technology:** PERC | Half cut cell | 9 Busbar | 144 Cells  
**Design:** Double Glass | Silver Frame | Glass Back

**Module Efficiency:** 20.2%  
**Cell Efficiency:** 22.5%~23.3%  
**Power Tolerance:** 0~+5W  
**System Voltage:** 1000/1500 V DC

**Module Size:** 84.06 x 41.19 x 1.38 inch  
**Module Weight:** 68.34 lb.  
**Module Code:** BVM6612M-XXXS-H-HC-BF-DG

### DESIGNED TO PERFORM AND BUILT TO LAST

Our PV modules are designed with better technology in mind, made from robust product components, under stringent quality control steps and high-tech manufacturing processes.

PERC, half-cut, multi-busbar, and large cell designs enables our PV modules to pack more power per module, capture more

photons, produce more energy, and provide reliable, dependable system performance under different installations requirements, difficult weather, or environmental conditions. Whether you are EPC, installer, contractor, or project developer, we have the right and better PV module for your residential, commercial, industrial, and utility scale solar projects.

Monocrystalline technology

P-Type semiconductor

Passivated emitter and rear cell technology

Half cut cell

Multi-Busbar cell

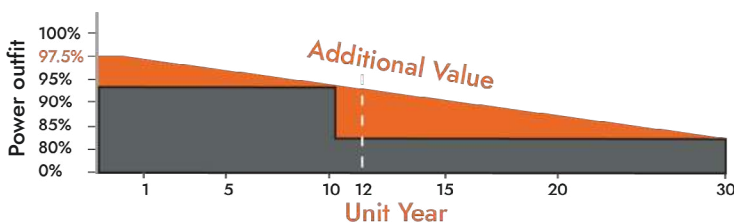
Large wafer design

Beautiful aesthetic

Robust product component

### WARRANTY

30 Years - Linear power performance warranty  
 12 Years - Enhanced product warranty



Output Linear Warranty

1 (12) years product warranty

Standard Warranty

2 Out linear warranty with 2.5% degradation in the 1st year and less than 0.5% degradation each year from 2nd year to 30th year

### CERTIFICATES

UL 61730 | IEC 61215 | IEC 61730 | CEC Listed | CE

ISO 9001 Quality Management System

ISO 14001 Environmental Management System

ISO 45001 Occupational Health and Safety Management System

\*Please contact with Boviet Solar representatives for full list of certificates according to local requirements and product type

## ELECTRICAL CHARACTERISTICS | STC

Maximum Power (Pmax)	440W	445W	450W
Maximum Power Current (Imp)	10.92A	10.99A	11.06A
Maximum Power Voltage (Vmp)	40.37V	40.57V	40.76V
Short Circuit Current (Isc)	11.48A	11.55A	11.60A
Open Circuit Voltage (Voc)	48.60V	48.80V	49.05V
Module Efficiency	19.7%	19.9%	20.2%
Power Tolerance	0~+5W	0~+5W	0~+5W

STC: AM1.5 Irradiance 1000W/m, 25° C

## ELECTRICAL CHARACTERISTICS | NOCT

Maximum Power (Pmax)	440 W	445 W	450 W
Maximum Power (Pmax)	324W	342W	361W
Maximum Power Current (Imp)	8.46A	8.65A	8.84A
Maximum Power Voltage (Vmp)	38.29V	39.54V	40.8V
Short Circuit Current (Isc)	8.87A	9.08A	9.28A
Open Circuit Voltage (Voc)	47.8V	48.2V	48.6V

NOCT: AM 1.5 Irradiance 800/m<sup>2</sup>, 20° C, Wind speed 1m/s

## MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline I PERC PV Cells 166mm Cell I Half-cut I 9 Busbar I 144 (6x24) pcs in series
Solar Modules	Bifacial I 84.06 x 41.19 x 1.38 inch. I Weight: 68.34 lb.
Module Glass	2.0mm (0.079inch) High transparency, low iron, AR-coated tempered glass
Module Frame	Frame 35 mm Ultra-strong anodized aluminum alloy frame
Module Junction Box	IP68 rated I 3 bypass diodes
Module Output Cable	4mm <sup>2</sup> (EU) I 12 AWG (US) 39.38 inch
Module Connector	Multi contact (MC4) compatible connectors
Module Encapsulant	POE
Module Backsheet	2.0mm thickness, transparent with a grid. High transmitted, low iron, and strength tempered glass
Module Fire Type	Type 29 Fire rated

## PACKING INFORMATION

Pieces per pallet:	30
Pallets per container (40HQ):	22
Pieces per container (40HQ):	660
Pallet Weight:	2127.5 lb
Pallet Dimension:	85.23 x 43.31 x 45.88 inch

## MAXIMUM RATING

Operating Temperature	-40°F~185°F
Maximum Series Fuse Rating	20A
Isc Temperature Coefficient	1000/1500V DC

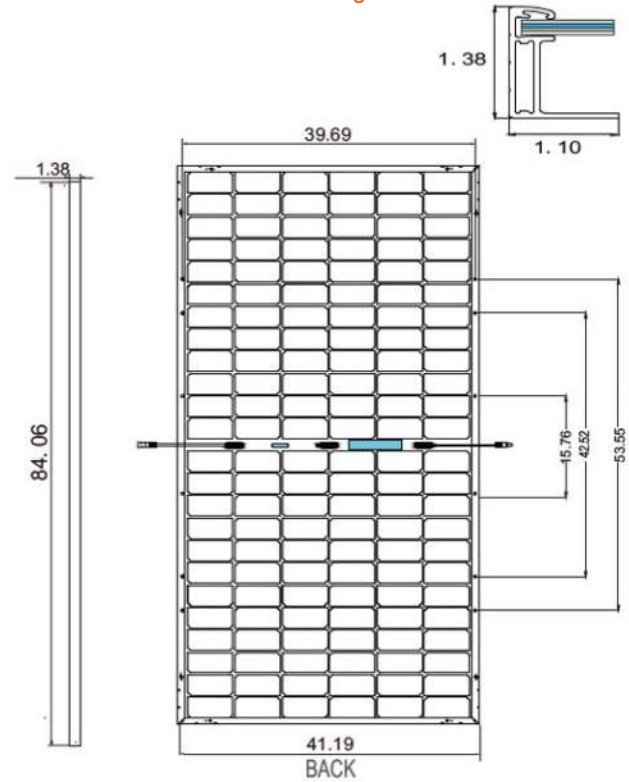
## THERMAL CHARACTERISTICS

Pmax Temperature Coefficient	-0.35%/K
Voc Temperature Coefficient	-0.285%/K
Isc Temperature Coefficient	+0.05%/K
NOCT	113±35.6°F

## BIFACIAL OUTPUT-BACKSIDE POWER GAIN

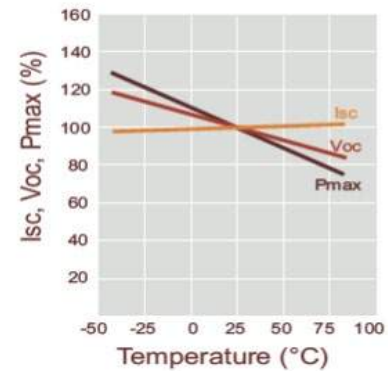
10%	Pmax(W)	484	490	495
	Module efficiency (%)	21.67	21.92	22.17
20%	Pmax(W)	528	534	540
	Module efficiency (%)	23.64	23.91	24.18

## PV Module: Mechanical Drawing



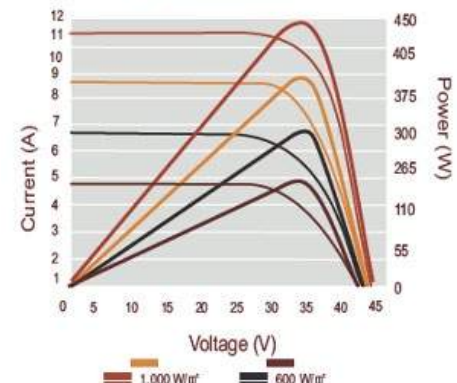
## PV Module: IV Curve

Irradiance: AM 1.5, 1,000W/m<sup>2</sup> ( 450W)



## PV Module: IV Curve

I-V Curves at Different Irradiances (450W)  
Test Temperature: 25°C





## TS4-A-O (725 W)

### Module-level optimization, monitoring, and rapid shutdown

The Tigo TS4-A-O improves production, safety, and intelligence in new designs and existing systems. Patented technology delivers top performance with high efficiency for a fast ROI. Easy installation and long-term reliability reduce system downtime and truck rolls, while Tigo’s Energy Intelligence platform enables quicker onsite commissioning and comprehensive remote monitoring.

### Features

- Rated 725 W, 22 A  $I_{SC}$  / 16 A  $I_{MP}$  to accommodate high-power, high-current modules
- Simple, fast installation – snaps to a standard PV module frame or mounts to racking
- Intelligent optimization – delivers the maximum energy from an array
- Module-level monitoring – full visibility into module- and system-level production
- Rapid shutdown – a UL Standards-certified component for photovoltaic rapid shutdown systems (PVRSS) worldwide
- Required – Tigo Access Point (TAP) and Cloud Connect Advanced (CCA) for rapid shutdown and module-level monitoring
- Multi-factor Rapid Shutdown capability for enhanced safety when combined with RSS Transmitter (optional)
- Works with thousands of different inverter models from more than 50 inverter brands
- 25-year warranty

### Specifications

Electrical	
Input Current ( $I_{MP}/I_{SC}$ )	16 A/22 A
Input voltage range ( $V_{MP}$ )	12 – 80 V
Maximum system voltage	1000 V/1500 V
Maximum output power ( $P_{MAX}$ )	725 W
Maximum efficiency	99.6%
Recommended fuse rating	30 A
Rapid Shutdown	
TS4 conductor	12 AWG
Rapid shutdown time limit	<30 sec.
PVRSS control conductor limit	$\leq 240$ VA, $\leq 8$ A, $\leq 30$ V <sub>DC</sub>
UL 1741 PVRSE standard certified	Yes
Communications	Wireless 2.4GHz <sup>1</sup> and/or PLC <sup>2</sup>

<sup>1</sup> Using Tigo Access Point (TAP) and Cloud Connect Advanced (CCA)

<sup>2</sup> Using Tigo RSS transmitter power-line communications



## Specifications

### Connections

Connectors MC4/EVO2

For cable length details, refer to the ordering information below

### Environmental

Operating temperature range -40 – 70 °C (-40 – 158 °F)

Storage temperature range -20 – 65 °C (-4 – 149 °F)

Maximum elevation 3000 m (9840 ft.)

Outdoor IP rating IP68

### Mechanical

Dimensions (H/W/D) 139.7 x 138.4 x 22.9 mm  
(5.4 x 5.5 x 0.9 in.)

Weight 520 g (1.15 lb.)

### General

Standards compliance

FCC 15b, ETSI EN 301 489, CISPR 31, CSA 22.2,  
IEC 62109, NEC 690.12 UL 1741 PVRSE/PVRSS

Warranty 25 years

## More Resources



Home



Help Center

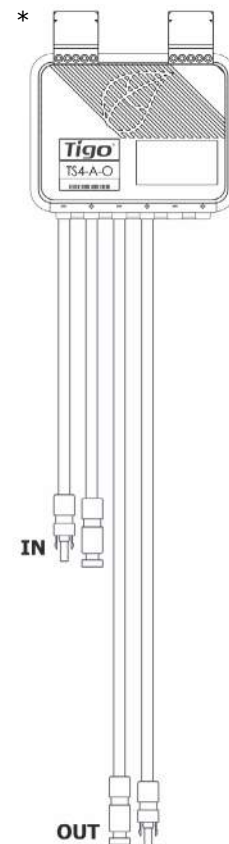


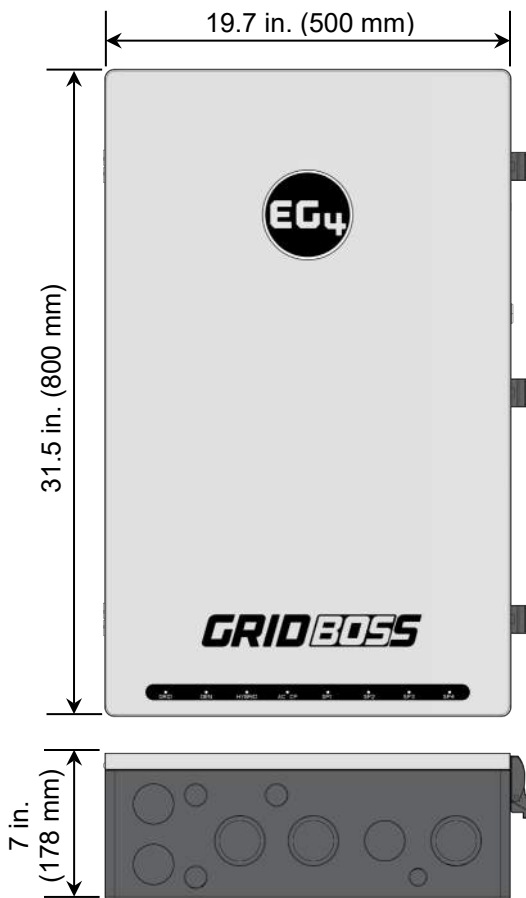
Downloads

## Ordering Information

Part Number	Cable Lengths* IN/OUT	Connectors	V <sub>MAX</sub>	Certifications UL/IEC
511-340112-2001	0.1/1.2 m	MC4	1500 V	1000 V
511-341220-2001	1.2/2.0 m	MC4	1500 V	1000 V
511-340612-2001	0.6/1.2 m	MC4	1500 V	1000 V
511-320112-2001	0.1/1.2 m	EVO2	1500 V	1500 V
511-320612-2001	0.6/1.2 m	EVO2	1500 V	1500 V
511-321220-2001	1.2/2.0 m	EVO2	1500 V	1500 V

\* Refer to image. Cable lengths are +/- 0.05m





# EG4<sup>®</sup> GRID BOSS

MICRO-GRID INTERCONNECTION DEVICE (MID)

The EG4 GridBOSS Micro-Grid Interconnection Device (MID) simplifies Energy Storage Systems (ESS) by consolidating multiple components into a single, innovative unit. It replaces traditional elements such as the point of common connection, back-fed breakers, feeder taps, tap breakers, supply-side taps, transfer switches, and dedicated combiner panels for grid-in, grid-out, and generator input. As a versatile solution, the GridBOSS serves as the service entrance equipment\* when paired with the utility meter, providing a single point of connection for utilities, hybrid inverters, generators, smart loads, and AC-coupled inverters.

**200A SERVICE  
ENTRANCE\***

**4 CONFIGURABLE  
SMART PORTS**

**INTEGRATED  
GENERATOR SUPPORT**

## CENTRALIZED ESS CONTROL

Provides a single point of connection for utility, hybrid inverters, generators, smart loads, and AC-coupled inverters.

## REDUCED ESS COMPLEXITY

Replaces up to 10 components with one unit, including point of common connection, back-fed breakers, feeder taps, feeder tap breakers, supply side taps & breakers, transfer switches, and dedicated combiner panels for grid-in, load/EPS, and generator input.

## SERVICE ENTRANCE RATED

200 Amp service entrance with a 22 kAIC main breaker, acts as service entrance equipment in conjunction with a utility meter and a 200A Eaton breaker (CSR25K).

## REMOTE MONITORING

Enable remote monitoring, configuration, and firmware updates through the EG4 mobile app or online monitoring system.

## SMART PORTS

Includes load shedding, which disconnects loads during low battery voltage and reconnects on high voltage. Power shedding connects loads when at full SOC and PV flow and disconnects on low SOC or PV loss.



\*When used with an Eaton 200A main breaker (model CSR25k)

## T E C H N I C A L   S P E C I F I C A T I O N S

<b>GRID</b>	
NOMINAL AC VOLTAGE	120/240VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	200A
SERVICE ENTRANCE RATED	22kAIC with 200A Eaton breaker (model: (CSR2200N) CSR25K)
<b>GENERATOR</b>	
NOMINAL VOLTAGE	120/240VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	125A
<b>NON-BACKUP</b>	
NOMINAL VOLTAGE	120/240VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	200A
<b>BACKUP</b>	
NOMINAL VOLTAGE	120/240VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	200A
<b>HYBRID</b>	
NUMBER OF PORTS	3
NOMINAL VOLTAGE	120/240VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT PER PORT	70A*
SUPPORTED INVERTERS	EG4® 12kPV, 18kPV, & FlexBOSS21**
<b>SMART PORTS</b>	
NUMBER OF PORTS	4
NOMINAL VOLTAGE	120/240VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT PER PORT	1: 125A   2: 80A   3: 60A   4: 60A
<b>GENERAL DATA</b>	
COMMUNICATION INTERFACE	RS485/Wi-Fi/CAN
IDLE CONSUMPTION	~55W
TRANSFER TIME	~25 ms
INTERNAL BUS RATING	350A
INTERNAL FUSE RATING	315A
OPERATING ALTITUDE	<6561 ft (<2000 m)
RELATIVE HUMIDITY	0 – 100%
OUTDOOR RATING	NEMA 3R
OPERATING AMBIENT TEMPERATURE RANGE	-40°F – 140°F (-40°C – 60°C)
PRODUCT DIMENSIONS (H×W×D)	31.5×19.7×7 in (800×500×178 mm)
UNIT WEIGHT	55 lbs. (25 kg)
STANDARD WARRANTY	10-year standard warranty***

\*Install a properly sized breaker based on the connected inverter: 50A - 12kPV; 70A - 18kPV; 90A - FlexBOSS21.

\*\*Third party inverters are not supported and cannot be connected to the hybrid ports.

\*\*\*For information regarding warranty registration on EG4® Electronics products, please navigate to <https://eg4electronics.com/warranty/> and select the corresponding product to begin the registration process.

## STANDARDS AND CERTIFICATIONS

UL1741, UL67, UL869A\*

FCC PART 15, CLASS B (PENDING)

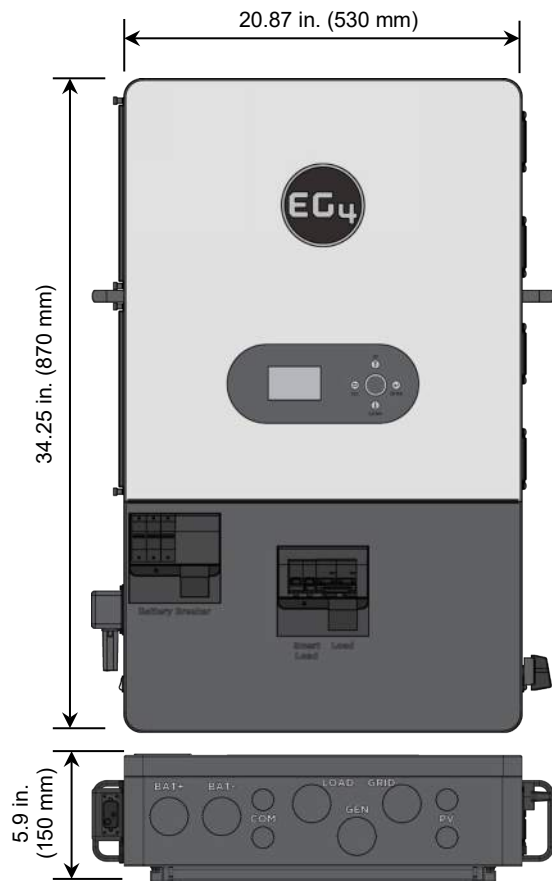
\*When used with a 200A Eaton CSR25K (CSR2200N) main breaker.

11-12-24

- Published v1.1.2
- Added QR code to cover page
- Added idle consumption and transfer time data.
- Modified warranty information and added direct link

10-31-24

- Published v1.1.1
- Modified spec sheet FCC Part 15, Class B to read as (pending)



# EG4® 12000XP

## OFF-GRID INVERTER

The EG4 12000XP is a 48V split-phase, off-grid inverter/charger capable of utilizing 24kW of PV input and efficiently outputting 15kW\* of power while also charging your battery bank. Parallel up to 16 units for 240kW of output power and control multiple stations and units using the EG4 Monitor Center.

HIGH  
FREQUENCY  
SPLIT-PHASE  
DESIGN

5-YEAR  
WARRANTY

REMOTE  
ADJUSTMENT  
VIA EG4  
SOFTWARE

### ALL-IN-ONE OFF-GRID INVERTER

Capable of running entirely off the grid or using grid electricity.

### UP TO 480 VDC INPUT

The extra high voltage enables lower cable sizing for the 2 MPPTs and a maximum utilized PV input of 24kW, eliminating the need for a combiner box.

### PLUG-IN WI-FI DEVICE

Enables wireless connection between the 12000XP and the EG4 app or EG4 Monitor system.

### CLOSED-LOOP COMMUNICATIONS

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

### SMART LOADS

The smart load port enhances the efficiency and effectiveness of solar power systems by intelligently managing energy consumption. This allows the port to have multiple use cases via load shedding, accepting AC Couple power, or power shedding for individual smart appliances.

*\*15kW Output only with model #: IV-15000-XP-IN-01*



## TECHNICAL SPECIFICATIONS

### AC INPUT DATA

NOMINAL AC VOLTAGE (GRID   GENERATOR)	120/240VAC; 120/208VAC (L1/L2/N required)
FREQUENCY (GRID   GENERATOR)	60 Hz (Default)   50 Hz (Configurable)
GRID MAX. CONTINUOUS AC CURRENT	100A @ 240VAC
MAX. AC INPUT POWER	24000W
GENERATOR MAX. CONTINUOUS CURRENT	62.5A @ 240VAC
RECOMMENDED GENERATOR CAPACITY	6000W – 15000W
AC BYPASS (GRID   GENERATOR)	100A   90A
AVAILABLE FAULT CURRENT	5kA
INPUT SHORT CIRCUIT CURRENT	150A peak @100us, per inverter

### AC OUTPUT DATA

OUTPUT VOLTAGE	120/240VAC; 208VAC
OUTPUT FREQUENCY	60 Hz (Default)   50 Hz (Configurable)
MAX. CONTINUOUS OUTPUT CURRENT*	62.5A @ 240VAC   62.5A @ 208V
NOMINAL POWER OUTPUT*	w/ PV: 15000W @ 240V   13000W @ 208V w/ out PV: 12000W @ 240V   12000W @ 208V
MAX. CONTINUOUS WATTAGE	15000W (L1-L2)   7500W (L1-N or L2-N)
PEAK POWER (SURGE CAPACITY)**	15360W for ≈10s
POWER FACTOR VALUE	.99
THD (V)	<3%
SWITCHING TIME	<10 ms @ Single / <20 ms @ Parallel

### PV INPUT DATA

NUMBER OF MPPTS	2
INPUTS PER MPPT	2/2
MAX. USABLE INPUT CURRENT	35A/35A
MAX. SHORT CIRCUIT INPUT CURRENT	44A/44A
DC INPUT VOLTAGE RANGE***	100 – 480 VDC
MIN. STARTUP VOLTAGE	100 VDC
MPPT OPERATING VOLTAGE RANGE	120 – 385 VDC
NOMINAL MPPT VOLTAGE	320 VDC
MAX. PV INPUT VOLTAGE***	500 VDC
MAX. UTILIZED SOLAR POWER	24000W (12000 per MPPT)
MAX. RECOMMENDED SOLAR INPUT	28000W (14000 per MPPT)

\*15kW nominal power output with model #: IV-15000-XP-IN-01 only. Previous models are limited to 12kW nominal output with max. continuous output current at 50A for 240 VAC, and 57.7A at 208 VAC.

\*\*With battery only.

\*\*\*When sizing the system, it is best practice to follow the DC Input Voltage Range.

Do not exceed the Max. PV Input Voltage. Any damage caused by reaching >500 VDC will not be covered under warranty.

EFFICIENCY	
MAXIMUM EFFICIENCY (MPPT)	99%
MAXIMUM EFFICIENCY (PV TO BATTERY)	92.8%
MAXIMUM EFFICIENCY (AC TO BATTERY)	92.5%
MAXIMUM EFFICIENCY (PV TO LOADS)	93.5%
MAXIMUM EFFICIENCY (BATTERY TO LOADS)	90.2%
IDLE CONSUMPTION (STANDBY MODE)*	<70W
BATTERY DATA	
COMPATIBLE TYPES	Lead-Acid/Lithium
MAX. CHARGE/DISCHARGE CURRENT (A)	250A
MAX. CHARGE/DISCHARGE POWER (W)	12000W
NOMINAL VOLTAGE	48 VDC
BATTERY VOLTAGE RANGE	46.4 – 60 VDC (Lithium)   38.4 – 60 VDC (Lead-Acid)
RECOMMENDED BATTERY CAPACITY PER INVERTER	>400Ah
HIGH DC CUT-OFF VOLTAGE	59 VDC (Lithium)   60 VDC (Lead-acid)
GENERAL DATA	
MAX. UNITS IN PARALLEL	16
PRODUCT DIMENSIONS (H×W×D)	34.25×20.87×5.91 in. (870×530×150 mm)
UNIT WEIGHT	104.7 lbs. (47.5 kg)
DESIGN TOPOLOGY	High Frequency - Transformerless
RELATIVE HUMIDITY	5 – 95% (non-condensing)
OPERATING ALTITUDE	<6561 ft. (<2000 m)
OPERATING AMBIENT TEMPERATURE RANGE	32°F – 113°F (0°C – 45°C) @ Full Load
STORAGE AMBIENT TEMPERATURE RANGE	5°F – 140°F (-15°C – 60°C)
NOISE EMISSION (TYPICAL)	<60 dB
LOCKED ROTOR AMPS (LRA)	195A
COOLING METHOD	Fan
COMMUNICATION INTERFACE	RS485/CAN/Wi-Fi
STANDARD WARRANTY**	5-year standard warranty
INGRESS PROTECTION RATING	IP20
SAFETY FEATURES	PV Reverse Polarity Protection, Surge Protection Device, Output Over-Voltage Protection, Output Over-Voltage Protection Varistor
STANDARDS AND CERTIFICATIONS	
UL1741	
FCC PART 15, CLASS B	

\*Idle consumption value tested with constant 300 VDC PV source

\*\*For information regarding warranty registration on EG4® Electronics products, please navigate to <https://eg4electronics.com/warranty/> and select the corresponding product to begin the registration process.

## CHANGELOG

v1.2.6

- Modified Max. Continuous Output Current to accommodate system update that allows 15000W continuous output.\*
- Modified Nominal Power Output to accommodate system update that allows 15000W output.\*  
\*This only applies to the updated model #: IV-15000-XP-IN-01
- Added footnotes to display output current and power output values for previous models.

v1.2.5

- Added 2 new values to AC Input Data, Available Fault Current and Input Short Circuit Current
- Added Max. PV Input Voltage value to spec sheet and added additional footnotes regarding PV sizing

3-19-25

- Corrected typo on cover page verbiage to reflect true parallel ratings

3-10-25

- Published v1.2.3
- Modified spec sheet to include updated certification.
- Added Locked Rotor Amps value to spec sheet

11-12-24

- Modified warranty information to include direct link.

11-11-24

- Modified spec sheet values
- Minor formatting changes
- Removed Operating Frequency line from AC Output Data

11-2-24

- Published v1.2.1
- Removed built in RSD statement from cover page.
- Added Smart Load functionality to cover page.

10-31-24

- Modified 10-year warranty on cover page to reflect warranty of 5 years

10-30-24

- Modified recommended generator input from >15000W to 6000W – 15000W

10-16-24

- Published v1.0



## WALLMOUNT ALL WEATHER LITHIUM BATTERY

The PowerPro WallMount All Weather 280Ah batteries are ideal for low-voltage residential outdoor energy storage system (ESS) applications. The batteries use lithium iron phosphate cells with the highest safety performance and an intelligent Battery Management System (BMS) that can monitor and record the voltage of each cell along with the current, voltage, and temperature of the module in real-time. The BMS also contains a passive balance function and an advanced battery control method, both of which improve the performance and longevity of the battery pack.

**BUILT-IN  
200A BMS**

**INTEGRATED  
600A BUSBARS**

**82.6MWh  
LIFETIME  
PRODUCTION\***

**\*10 YEAR  
WARRANTY  
>8000 CYCLES @  
80% DOD**

### ON-BOARD LCD TOUCH SCREEN

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

### DUAL ON-BOARD FIRE ARRESTORS

Offer fail-safe protection against thermal runaway.

### WEATHER-TIGHT QUICK CONNECTS

Included battery cables with outdoor rated connectors allowing 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 Lithium battery cell operations.

### INTEGRATED BUSBARS

The battery design comes manufactured with 600A internal busbars with multiple terminals (4 positive & 4 negative) eliminating the need for external busbars when paralleling batteries and/or multiple inverters.

### INNOVATIVE EMERGENCY STOP FUNCTION

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

### THE PERFECT PARTNER TO THE EG4 18KPV

The optional conduit box mates up directly to the connection ports of the inverter allowing a sleek and efficient installation. For other inverters or stand-alone battery installation, the conduit box plugs should be installed.



## SPECIFICATION SHEET

MODULE OPERATING PARAMETERS			
Parameter	BMS		Recommended Charger Settings
Total Energy Capacity	14.3kWh @25C, 100% SOC		-
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)
SOC Cutoff	-		20%*
Charge Current	200A Max. Continuous		60 - 160A
Discharge Current	200A Max. Continuous		160A
BMS PARAMETERS			
Charge	Spec	Delay	Recovery
Cell Voltage Protection	3.8V	1 sec	3.45V
Module Voltage Protection	60V	1 sec	55.2V
Charge Over-Current 1	>205A	10 sec	-
Charge Over-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
Discharge Over-Current 1	>205A	10 sec	60 sec
Discharge Over-Current 2	>300A	3 sec	60 sec
Short Circuit	2000A	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 Temperature 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	Measure Range: -40°F - ≈212°F (-40°C - ≈100°C)
Voltage Accuracy	0.5%	Cycle Measurement	Cells & Module
Current Accuracy	3%	Cycle Measurement	Measure Range: -200 - 200A
SOC	5%		Integral Calculation
Power Consumption (Standby)	<300uA		Standby/Storage
Power Consumption (Operating)	<25mA		Charging/Discharging
Communication Ports	RS485/CAN		Customizable

<b>BATTERY HEATER SPECIFICATIONS</b>		
Parameter	Spec	Condition
Voltage	56V	-
Power Consumption	224W	-
Internal Battery Temperature	≤32°F (0°C) or ≥41°F (5°C)	Heat On/Heat Off
<b>ENVIRONMENTAL PARAMETERS</b>		
Charging Range		32°F 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
<b>PHYSICAL SPECIFICATIONS</b>		
Dimensions (H × W × D)		34.6 × 22.3 × 9.1 in. (88 × 56.6 × 23.2cm)
Weight		308.6 lbs. (140 kg)
Design Life		>15 years
Cycle Life		>8000 Cycles @ 0.5C 80% DOD
Lifetime Production		82.6MWh*
<b>SAFETY CERTIFICATIONS</b>		
Certifications		UL1973, UL9540A (Passed)

\*EG4 recommends this value be set no lower than 20% to maintain the recommended 80% depth of discharge.

\*\* $(51.2V \times 280Ah / 1000 \times 80\% \times 8000 \text{ cycles} / 1000) 90\% = MWh$