ROMMY DAVIS
NEW GRID-INTERACTIVE PHOTOVOLTAIC SYSTEM
DC SYSTEM SIZE (5.81KW)

SYSTEM DETAILS

DESCRIPTION	NEW GRID-INTERACTIVE PHOTOVOLTAIC SYSTEM WITH NO BATTERY STORAGE
DC RATING OF SYSTEM	SYSTEM SIZE :5.81 KW DC STC
AC RATING OF SYSTEM	5 KW AC
AC OUTPUT CURRENT	21 A
NO. OF MODULES	(14) TRINA SOLAR TSM-DE09R.05 (415W) SOLAR MODULE
NO. OF INVERTERS	(1) SOLAREDGE SE5000H-US INVERTER
POINT OF CONNECTION	BACKFEED BREAKER IN THE MMC
ARRAY STRINGING	(1) BRANCH OF 14 MODULES

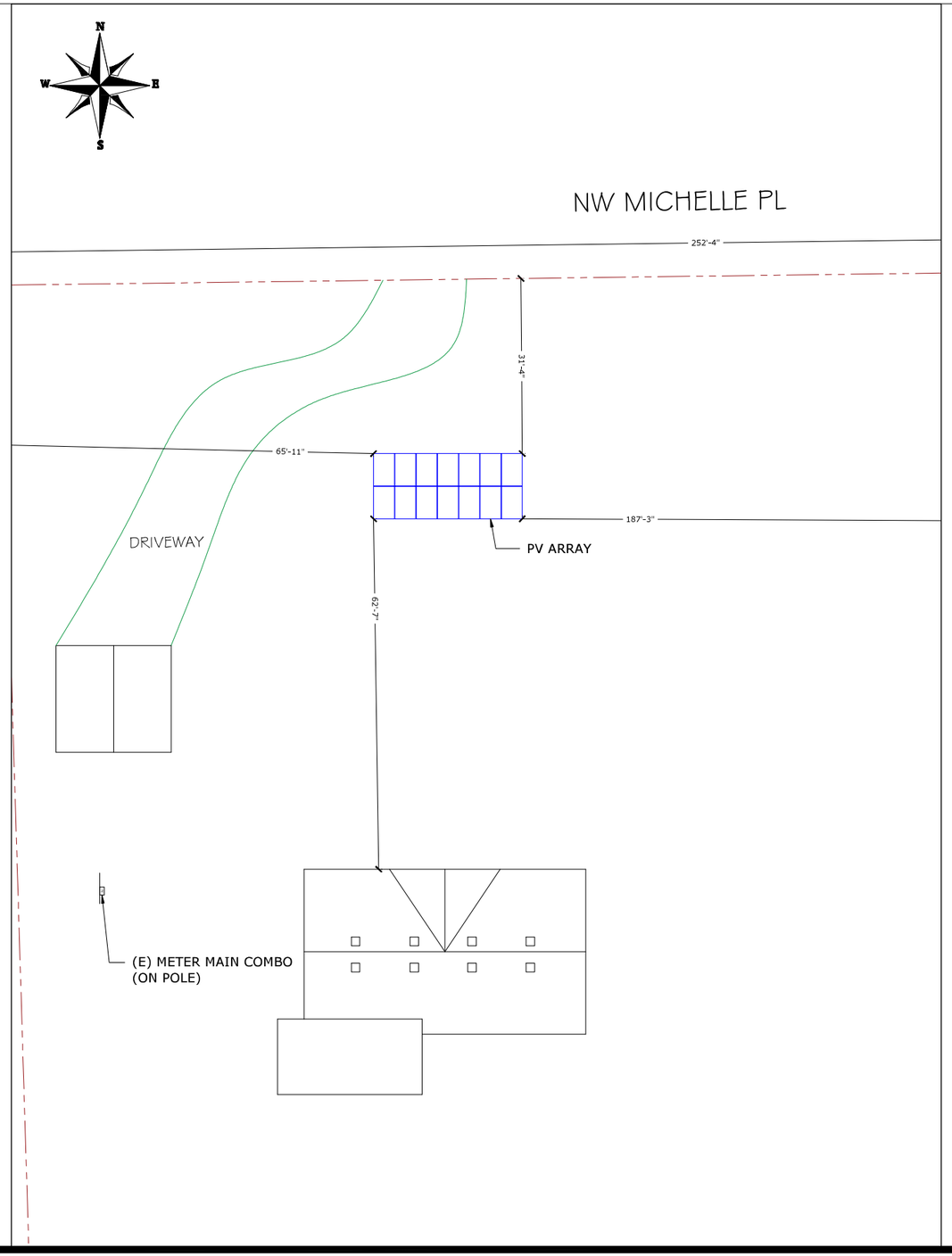
SITE DETAILS

ASHRAE EXTREME LOW	-5°C
ASHRAE 2% HIGH	34°C
GROUND SNOW LOAD	0 PSF
WIND SPEED	110MPH (ASCE 7-16)
RISK CATEGORY	I
WIND EXPOSURE CATEGORY	C

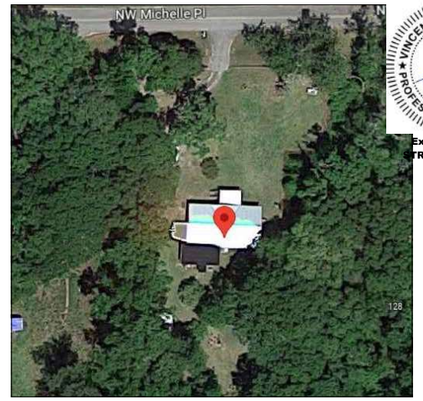
GOVERNING CODES

FLORIDA RESIDENTIAL CODE, 7TH EDITION 2020 (FRC)
FLORIDA BUILDING CODE, 7TH EDITION 2020 (FBC)
FLORIDA FIRE PREVENTION CODE, 7TH EDITION 2020 (FFPC)
NATIONAL ELECTRICAL CODE, NEC 2017 CODE BOOK, NFPA 70

SHEET INDEX

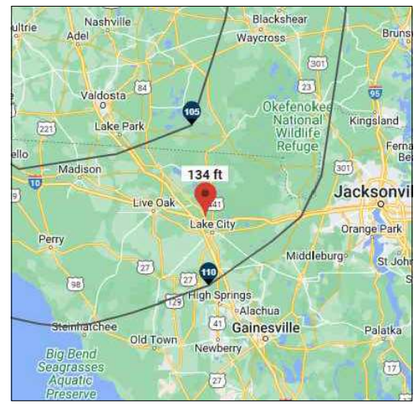


SITE MAP



VICINITY MAP

WIND FLOW MAP



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CONTACT:-(800) 798-0315

ENGINEER OF RECORD

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VINCENT MWUMVANEZA LICENSE No. 86986 STATE OF FLORIDA PROFESSIONAL ENGINEER

Exp:02/28/2025
STRUCTURAL ONLY

Vincent Mwumvaneza

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Date: 2023.06.29 13:38:59 -04'00'

ROMMY DAVIS

158 NW MICHELLE PL, LAKE CITY, FL 32055, USA

REVISIONS

REV	DESCRIPTION	DATE
ENGG.		

PERMIT DEVELOPER

DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME

SITE MAP & VICINITY MAP

SHEET NUMBER

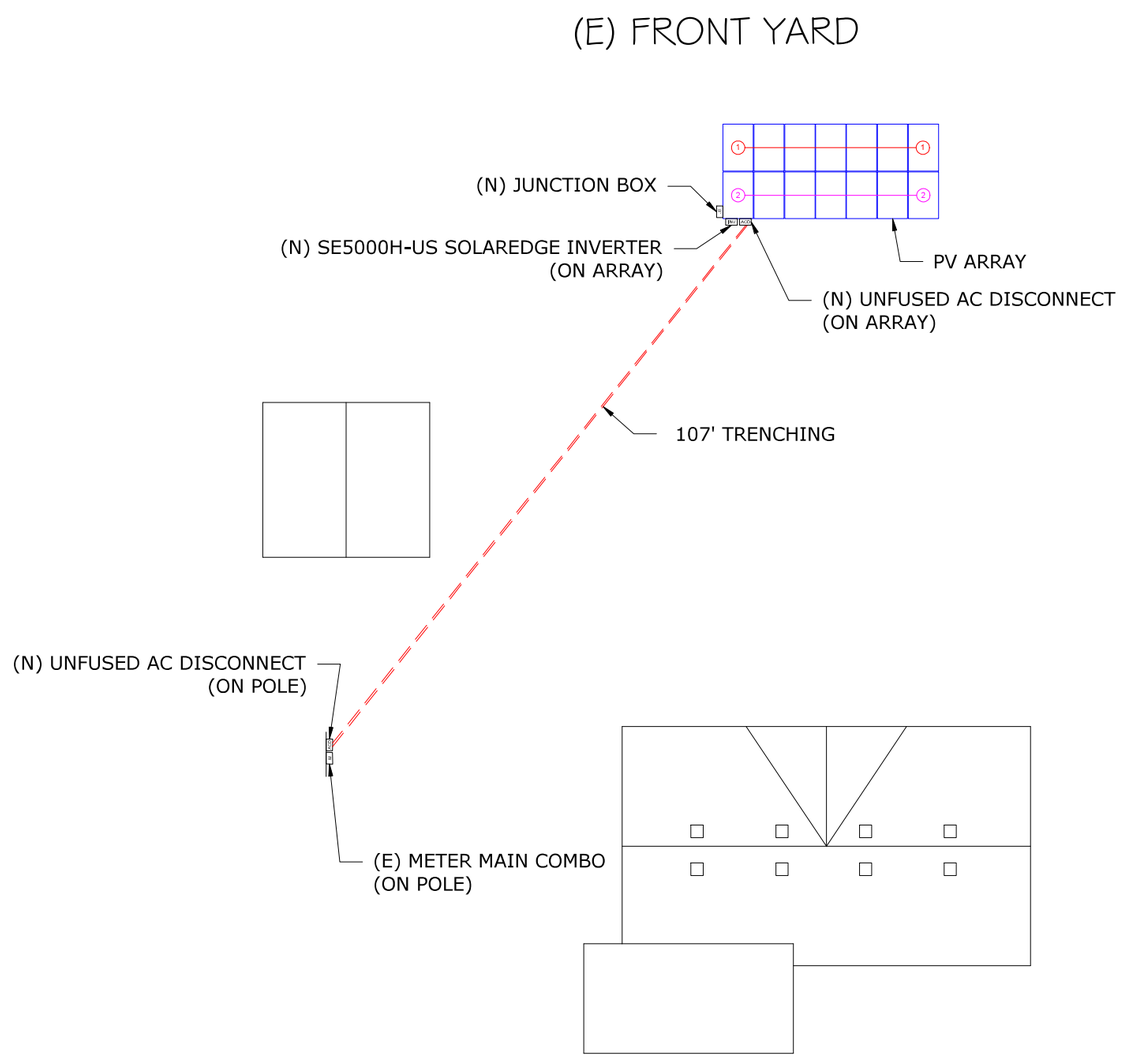
A-00

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 14 MODULES
MODULE TYPE = TRINA SOLAR TSM-DE09R.05 (415W) SOLAR MODULE
WEIGHT = 48.06 LBS / 21.8 KG.
MODULE DIMENSIONS = 69.37" X 44.65" = 21.51 SF

NUMBER OF INVERTER = 1 INVERTER
INVERTER TYPE = SOLAREDGE SE5000H-US INVERTER

DC SYSTEM SIZE: 5.81 KW
AC SYSTEM SIZE: 5 KW



1 - MODULE STRING

2 - MODULE STRING

LEGENDS

- M - METER MAIN COMBO
- JB - JUNCTION BOX
- INV - INVERTER
- ACD - AC DISCONNECT
- FIRE SETBACK
- 1 - STRING TAG
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- CONDUIT
- TRENCHING

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REVISIONS	DATE	DESCRIPTION	REV ENGG.

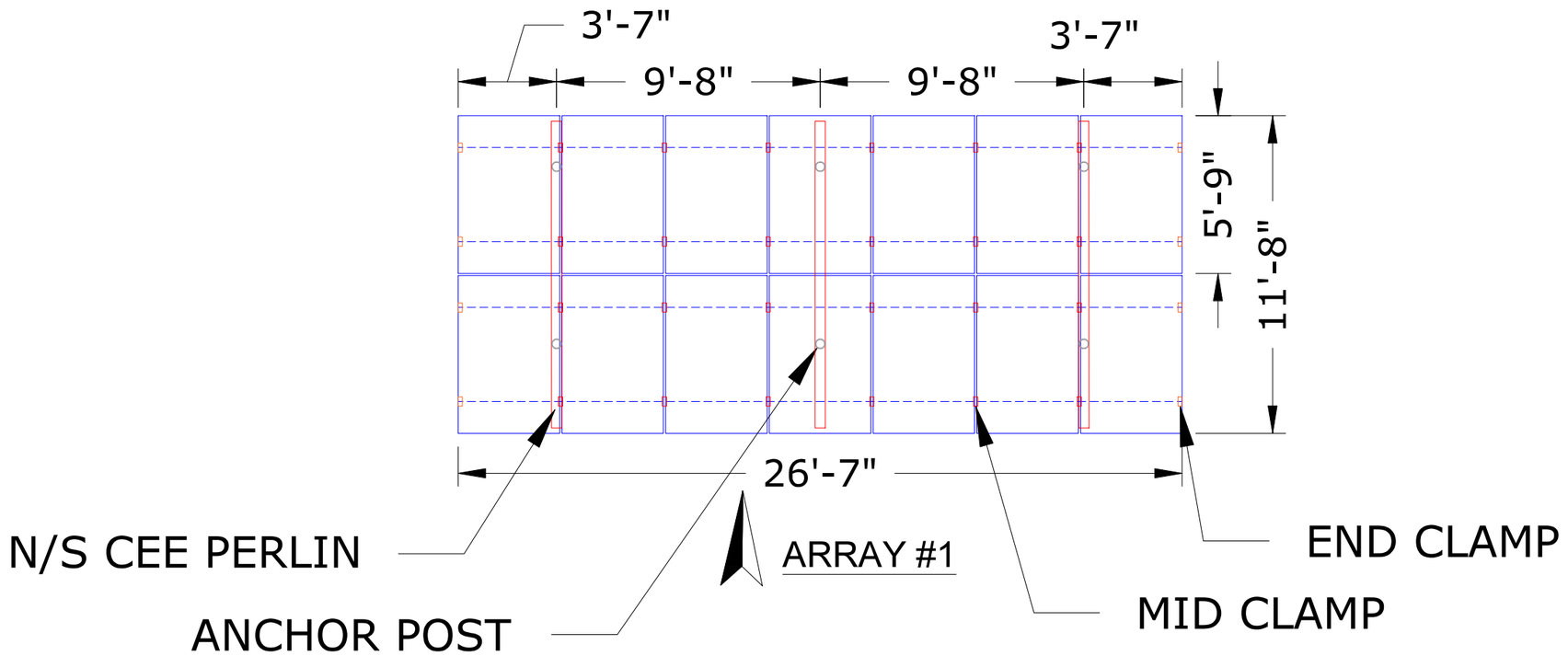
PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME
ROOF PLAN & MODULES

SHEET NUMBER
A-01

(ARRAY #1)

MODULES - 14
GROUND TILT - 20°
GROUND AZIMUTH - 180°



- ANCHOR POST
- CAPS
- RAILS
- RAFTERS / TRUSSES

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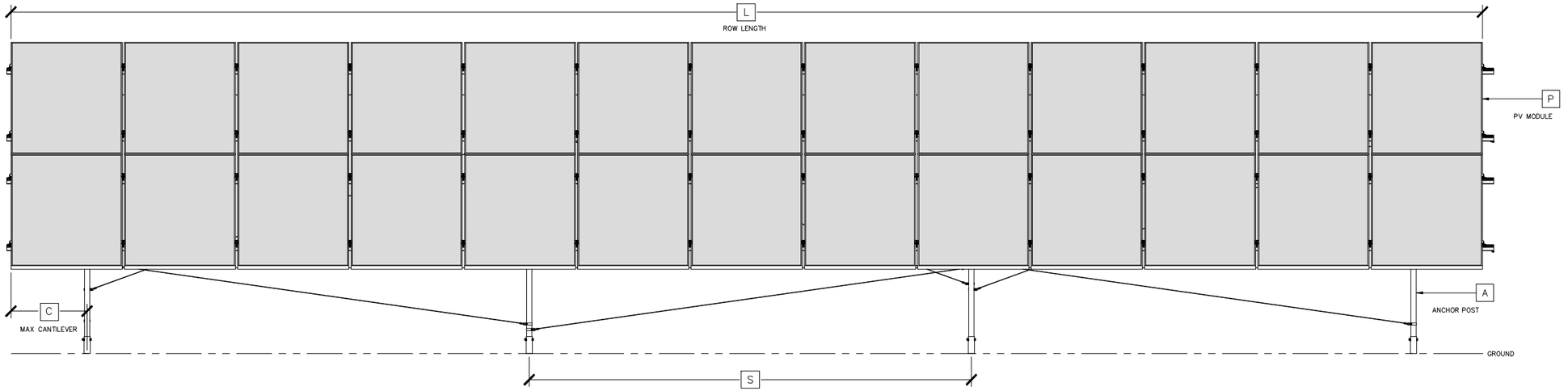
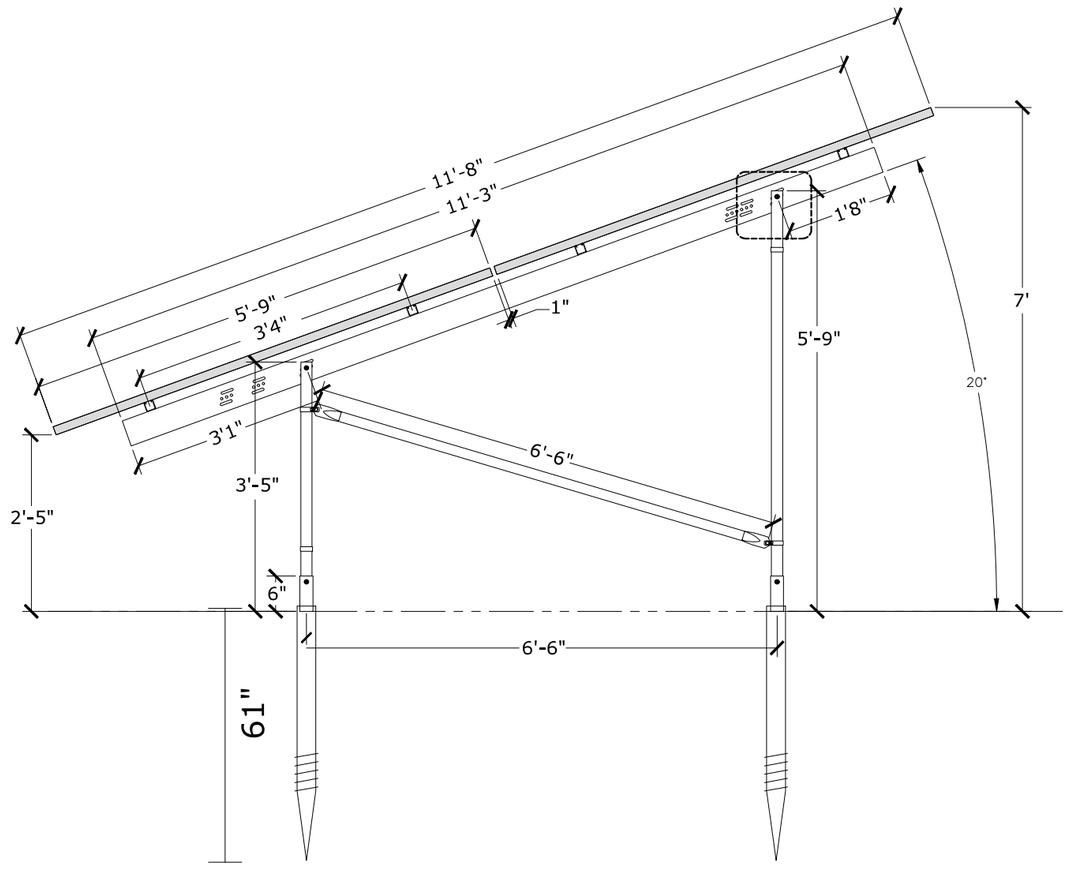
REVISIONS	REV	ENGG.	DESCRIPTION	DATE

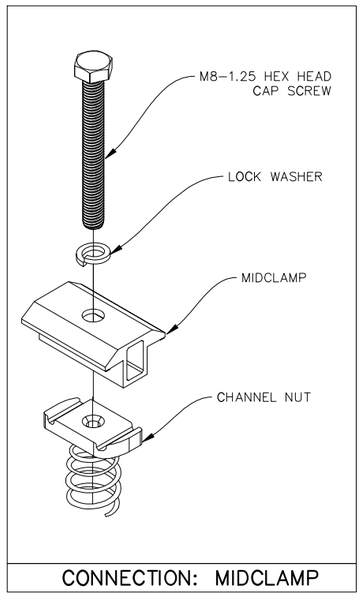
PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME
ARRAY LAYOUT

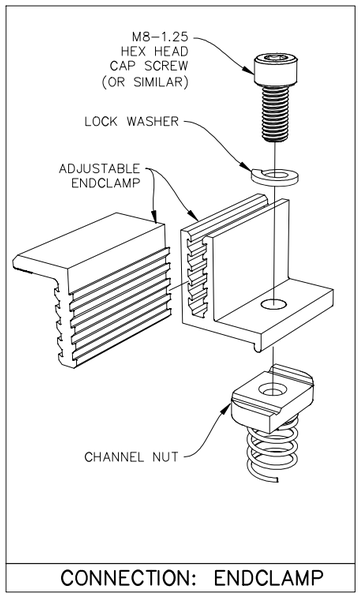
SHEET NUMBER
S-01







CONNECTION: MIDCLAMP



CONNECTION: ENDCLAMP

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REVISIONS	DESCRIPTION	DATE
REV ENGG.		

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME

STRUCTURAL ATTACHMENT DETAILS

SHEET NUMBER

S-02

NOTE:
SUBJECT PV SYSTEMS HAS BEEN DESIGNED TO MEET THEREQUIREMENTS OF THE NEC 2017, NFPA 70 AND THOSE SET FORTH BYTHE FLORIDA SOLAR ENERGY CENTER CERTIFICATION, INCLUDINGMAXIMUM NUMBER OF MODULE STRINGS, MAXIMUM NUMBER OFMODULES PER STRING, MAXIMUM OUTPUT, MODULE MANUFACTURERAND MODEL NUMBER, INVERTER MANUFACTURER AND MODEL NUMBER, AS APPLICABLE. 2. PROVIDE TAP BOX IN COMPLIANCE WITH 312.8 IF PANEL GUTTER SPACE IS INADEQUATE.

SOLAR ARRAY (5.81 KW-DC STC)
AC SYSTEM SIZE 5 KW AC
(14) TRINA SOLAR TSM-DE09R.05 (415W) SOLAR MODULE
(1) SE5000H-US SOLAREDGE INVERTER
(1) BRANCH OF 14 MODULES

PV WIRE

S440 SOLAREDGE POWER OPTIMIZER

PV MODULES

(N)JUNCTION BOX
600 V, NEMA 3R
UL LISTED

EQUIPPED WITH RAPID SHUTDOWN

SOLAREDGE SE5000H-US INVERTER
5000W ,99% CEC 240VAC,21A

(1) 12/2 NM-b RUN IN ATTIC OR
(1) #10 AWG THHN- RED
(1) #10 AWG THHN - BLACK
(1) #10 AWG THHN GND
IN 3/4" IMC, RMC, FMC, LFMC, PVC, HDPE, NUCC, RTRC, LFNC, FMT, ENT OR EMT CONDUIT RUN

(N) AC DISCONNECT:
240V, 60AMP, UNFUSED
NEMA 3R, UL LISTED

(3) #6 AWG THWN-2
(1) #10 AWG THWN-2 GND
IN 3/4" IMC, RMC, FMC, LFMC, PVC, HDPE, NUCC, RTRC, LFNC, FMT, ENT OR EMT CONDUIT RUN

107' TRENCHING

(3) #6 AWG THHN
(1) #10 AWG THHN GND
IN 3/4" IMC, RMC, FMC, LFMC, PVC, HDPE, NUCC, RTRC, LFNC, FMT, ENT OR EMT CONDUIT RUN

INTERCONNECTION
120% RULE - NEC 705.12(B)(2)(3)(b)

UTILITY FEED + SOLAR BACKFEED
200A + 30A = 230 A
BUSS RATING x 120%
200A x 120% = 240A

(N) AC DISCONNECT:
240V, 60AMP, UNFUSED
NEMA 3R, UL LISTED

(3) #6 AWG THWN-2
(1) #10 AWG THWN-2 GND
IN 3/4" IMC, RMC, FMC, LFMC, PVC, HDPE, NUCC, RTRC, LFNC, FMT, ENT OR EMT CONDUIT RUN

TO UTILITY GRID

BI-DIRECTIONAL
UTILITY METER
1-PHASE, 240V
(OUTSIDE HOUSE)

(E) METER MAIN COMBO
240V.
(ON POLE)

200A/2P

(N) MAIN BREAKER
200A/2P, 240V

30A/2P

EXISTING GROUNDING

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Date: 2023.06.29 11:36:00 -07'00'

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REVISIONS

REV	ENGG.	DESCRIPTION	DATE

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME
ELECTRICAL LINE DIAGRAM

SHEET NUMBER
E-01

ELECTRICAL CALCULATIONS:

1. CURRENT CARRYING CONDUCTOR

(A) BEFORE INVERTER

AMBIENT TEMPERATURE = 34°C
CONDUIT INSTALLED AT DISTANCE OF 7/8 INCHES ABOVE ROOF .....NEC 310.15(B)(3)(c)
TEMPERATURE DERATE FACTOR - 0.96 ...NEC 310.15(B)(2)(a)
GROUPING FACTOR - 0.8...NEC 310.15(B)(3)(a)

CONDUCTOR AMPACITY
= (OPT O/P CURRENT) x 1.56 / A.T.F / G.F ...NEC 690.8(B)
= [(15 x 1.56) x 1.25] / 0.96 / 0.8
= 38.09 A
SELECTED CONDUCTOR - #10 THHN ...NEC 310.15(B)(16)

AFTER INVERTER
TEMPERATURE DERATE FACTOR - 0.96
GROUPING FACTOR - 1

CONDUCTOR AMPACITY
=(TOTAL INV O/P CURRENT) x 1.25 / 0.96 / 1 ...NEC 690.8(B)
=[21 x 1.25] /0.96 / 1
=27.34 A
SELECTED CONDUCTOR - #6 THHN...NEC 310.15(B)(16)

2. PV OVER CURRENT PROTECTION ..NEC 690.9(B)

=TOTAL INVERTER O/P CURRENT x 1.25
=(21 x 1.25) = 26.25 A
SELECTED OCPD = 30A

SELECTED EQUIPMENT GROUND CONDUCTOR (EGC) = #10 THHN... NEC 250.122(A)

MODULE SPECIFICATION	
MODEL NO.	TRINA SOLAR TSM-DE09R.05(415W)
PEAK POWER	415W
RATED VOLTAGE (Vmpp)	41.7 V
RATED CURRENT (Impp)	9.94 A
OPEN CIRCUIT VOLTAGE (Voc)	50.0 V
SHORT CIRCUIT CURRENT (Isc)	10.55 A

OPTIMIZER SPECIFICATIONS	
MANUFACTURER	SOLAREDGE OPTIMIZER
MODEL NO.	S440
MAX.OPEN CIRCUIT VOLTAGE (Voc)	60 V
MAX. AC OUTPUT CURRENT	15 A

MAX VOLTAGE DROP CALCULATION

CABLE SIZE	CABLE DESCRIPTION	ONE WAY DISTANCE IN FEET (D)	BRANCH CURRENT (I)	RESISTANCE OF CONDUCTOR(R)	VOLTAGE (V)	% VOLTAGE DROP=(0.2*D*I*R)/V
#6 THWN-2	UNFUSED AC DISCONNECT TO UNFUSED AC DISCONNECT	107	21	0.491	240	0.919

ELECTRICAL NOTES

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL AND LABELED FOR ITS APPLICATION.
2. COPPER CONDUCTORS SHALL BE RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.THE TERMINALS ARE RATED FOR 75 DEGREE C ROMEX/NM-B (NONMETALLIC-SHEATHED) CABLE MAY BE USED FOR BOTH EXPOSED AND CONCEALED WORK IN NORMALLY DRY LOCATIONS AT TEMPERATURES NOT TO EXCEED 90°C (WITH AMPACITY LIMITED TO THAT FOR 60°C CONDUCTORS) AS SPECIFIED IN THE NATIONAL ELECTRICAL CODE. VOLTAGE RATING FOR NM-B CABLE IS 600 VOLTS.
3. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.265. WORKING CLEARANCES AROUND ALL NEW AND EXISTING
4. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
5. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
6. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
7. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
8. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
9. THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE.
10. UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
11. MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
12. RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
13. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.10 (D).
14. CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.10 (C).

INVERTER SPECIFICATIONS	
MANUFACTURER	SOLAREDGE
MODEL NO.	SE5000H-US
MAX.OUTPUT POWER	5000 V
MAX. AC OUTPUT VOLTAGE	240 V
MAX. AC OUTPUT CURRENT	21 A

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CONTACT:-(800) 798-0315

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ROMMY DAVIS
158 NW MICHELLE PL, LAKE CITY, FL 32055, USA

REVISIONS	DESCRIPTION	DATE
REV. ENGG.		

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME: WIRING CALCULATIONS

SHEET NUMBER: E-02

⚠ WARNING

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

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION, COMBINER PANEL
(PER CODE: NEC 690.13(B))

WARNING PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
CONDUIT RUNWAY
(PER CODE: NEC690.31(G)(3)(4))

⚠ WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
MAIN SERVICE DISCONNECT
(NEC 705.12(B)(3-4) & NEC 690.59)

ADHESIVE FASTENED SIGNS:

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

PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OPERATING CURRENT 21 AMPS
AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
AC DISCONNECT, INVERTER
(PER CODE: NEC 690.54)

WARNING
INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
POINT OF INTERCONNECTION, MAIN SERVICE DISCONNECT
(PER CODE: NEC 705.12 (B)(2)(c))
[Not required if panelboard is rated not less than sum of ampere ratings of all overcurrent devices supplying it]

DATA PER PANEL

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

LABEL LOCATION:
AC DISCONNECT, DC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.56(C)(3))

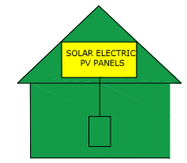
⚠ WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

EMERGENCY CONTACT
727-571-4141

⚠ WARNING
DEDICATED SOLAR PANELS DO NOT CONNECT ANY OTHER LOADS

EMERGENCY RESPONDER THIS SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN

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



NEC690.56(C)(1) AND NFPA 111.12.2.1.1.1.1, 11.12.2.1.4

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REVISIONS	DATE	DESCRIPTION	ENGG.	REV

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME
SYSTEM LABELING

SHEET NUMBER
E-03

Mono Multi Solutions

Vertex S

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE09R.05

PRODUCT RANGE: 405-425W

425W MAXIMUM POWER OUTPUT

0~+5W POSITIVE POWER TOLERANCE

21.3% MAXIMUM EFFICIENCY

reddot winner 2022

Outstanding Visual Appearance

- Designed with aesthetics in mind
- Excellent cell color control by dedicated cell blackening treatment and machine selection.
- Thinner wires that appear all black at a distance

Small in size, big on power

- Small form factor. Generate a huge amount of energy even in limited space.
- Up to 425W, 21.3% module efficiency with high density interconnect technology
- Multi-busbar technology for better light :rapping effect, lower series resistance and improved current collection
- Reduce installation cost with higher power bin and efficiency
- Boost performance in warm weather lower temperature coefficient (-0.34%) and operating temperature

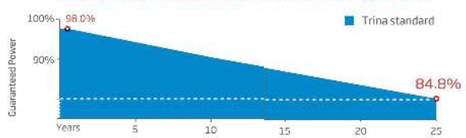
Universal solution for residential and C&I rooftops

- Designed for compatibility with existing mainstream optimizers, inverters and mounting systems
- Perfect size and low weight. Easy for handling. Economy for transporting
- Diverse installation solutions. Flexible for system deployment

High Reliability

- 15 year product warranty
- 25 year performance warranty with lowest degradation;
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Mechanical performance up to 6000 Pa positive load and 4000 Pa negative load

Trina Solar's Backsheet Performance Warranty



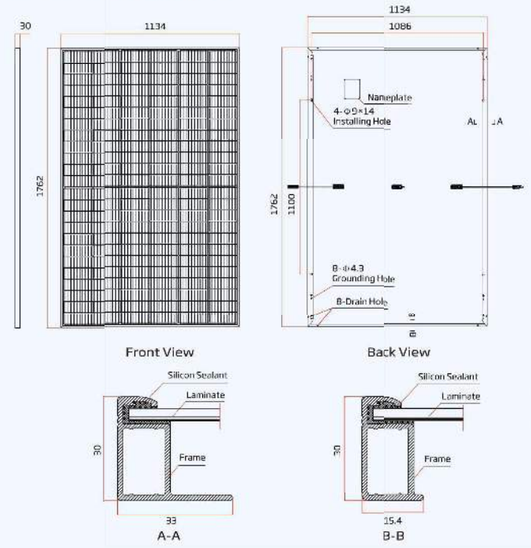
Comprehensive Products and System Certificates

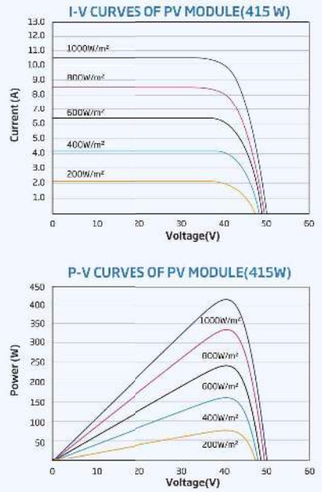
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System

Trinasolar

Vertex S BACKSHEET MONOCRYSTALLINE MODULE

DIMENSIONS OF PV MODULE(mm)





ELECTRICAL DATA (STC)

Peak Power Watts-Pmax (Wp)*	405	410	415	420	425
Power Tolerance-Pmax (W)			0 ~ +5		
Maximum Power Voltage-Vmpp (V)	41.3	41.5	41.7	42.0	42.2
Maximum Power Current-Impp (A)	9.82	9.87	9.94	10.01	10.08
Open Circuit Voltage-Voc (V)	49.7	49.8	50.0	50.1	50.2
Short Circuit Current-Isc (A)	10.50	10.53	10.55	10.58	10.61
Module Efficiency η m (%)	20.3	20.5	20.8	21.0	21.3

STC: Irradiance 1000W/m2, Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: ±3%.

ELECTRICAL DATA (NOCT)

Maximum Power-Pmax (Wp)	306	309	312	317	321
Maximum Power Voltage-Vmpp (V)	38.3	38.5	38.7	39.2	39.5
Maximum Power Current-Impp (A)	7.99	8.03	8.07	8.10	8.13
Open Circuit Voltage-Voc (V)	46.8	46.9	47.1	47.1	47.2
Short Circuit Current-Isc (A)	8.46	8.49	8.50	8.53	8.55

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	144 cells
Module Dimensions	1762×1134×30 mm (69.37×44.65×1.18 inches)
Weight	21.8 kg (48.1 lb)
Glass	3.2 mm (0.13 inches), High-Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Backsheet	Black-White
Frame	30mm(1.18 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²), Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4*

*Please refer to regional datasheet for specified connector.

TEMPERATURE RATINGS

NOCT(Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of Pmax	-0.34%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	0.04%/°C

MAXIMUMRATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	20A

WARRANTY

15 year Product Workmanship Warranty
25 year Power Warranty
2% first year degradation
0.55% Annual Power Attenuation
(Please refer to product warranty for details)

PACKAGING CONFIGUREATION

Modules per box: 36 pieces
Modules per 40' container: 936 pieces

Trinasolar

Version number: TSM_EN_2022_A
www.trinasolar.com

EnLightEnergy

978 SW 2ND AVE GAINESVILLE , FL 32601
CONTACT:-(800) 798-0315

ENGINEER OF RECORD

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ROMMY DAVIS

158 NW MICHELLE PL, LAKE CITY, FL 32055, USA

REVISIONS	REV	ENGG.	DESCRIPTION	DATE

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME
MODULE DATASHEET

SHEET NUMBER
DS-01

Power Optimizer

For Residential Installations

S440 / S500 / S500B

POWER OPTIMIZER

Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects 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

* Functionality subject to inverter model and firmware version

solaredge.com

solaredge

Power Optimizer

For Residential Installations

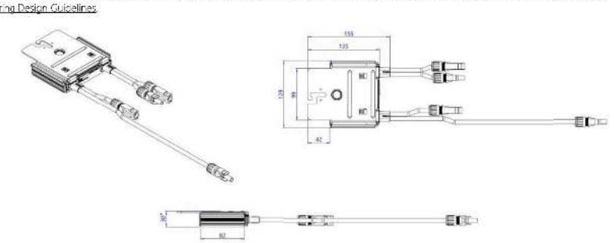
S440 / S500 / S500B

	S440	S500	S500B	UNIT
INPUT				
Rated Input DC Power(3)	440	500		W
Absolute Maximum Input Voltage (Voc)	60		125	Vdc
MPPT Operating Range	8 – 60		12.5 – 105	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			
OUTPUT DURING OPERTION				
Maximum Output Current	15			Adc
Maximum Output Voltage	60		80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)				
Safety Output Voltage per Power Optimizer	1 ± 0.1			Vdc
STANDARD COMPLIANCE(2)				
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011			
Safety	IEC62109-1 (class II safety), UL1741			
Material	UL94 V-0, UV Resistant			
RoHS	Yes			
Fire Safety	VDE-AR-E 2100-712:2013-05			
INSTALLATION SPECIFICATIONS				
Maximum Allowed System Voltage	1000			Vdc
Dimensions (W x L x H)	129 x 155 x 30		129 x 155 x 45	mm
Weight (including cables)	655			gr
Input Connector	MC4(3)			
Input Wire Length	0.1			m
Output Connector	MC4			
Output Wire Length	(+) 2.3, (-) 0.10			m
Operating Temperature Range(4)	-40 to +85			°C
Protection Rating	IP68			
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 details about CE compliance, see Declaration of Conformity – CE.
(3) For other connector types please contact SolarEdge.
(4) For ambient temperature above +70°C power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for details.

PV System Design Using a SolarEdge Inverter(5)		SolarEdge Home Wave Single Phase	Three Phase SExxK-RWB	Three Phase for 230/400V Grid	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440, S500	8	9	16	18	
	S500B	6	8	14		
Maximum String Length (Power Optimizers)		25	20	50		
Maximum Continuous Power per String		5700	5625	11250	12750	W
Maximum Allowed Connected Power per String (Permitted only when the power difference between strings is less than 2,000W)		See(6)	See(6)	13500	15000	W
Parallel Strings of Different Lengths or Orientations		Yes				

(5) It is not allowed to mix S-series and P-series Power Optimizers in new installations.
(6) If the inverter's rated AC power is 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 Application Note: Single String Design Guidelines



* 45mm for S500B

CE RoHS

EnLight Energy

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CONTACT:-(800) 798-0315

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ROMMY DAVIS

158 NW MICHELLE PL, LAKE CITY, FL 32055, USA

REVISIONS

REV	ENGG.	DESCRIPTION	DATE

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME

OPTIMIZER DATASHEET

SHEET NUMBER

DS-02

Single Phase Inverter with HD-Wave Technology

for North America

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

INVERTERS

12-25 YEAR WARRANTY

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

solaredge

Single Phase Inverter with HD-Wave Technology for North America

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SE3000H-xxxxxx-xxx4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	5000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	5000 @ 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[1]							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	Adjustable -0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
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[2]	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V[2]	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

[1] For other regional settings please contact SolarEdge support
[2] A higher current source may be used; the inverter will limit its input current to the values stated

Single Phase Inverter with HD-Wave Technology for North America

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional[3]							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)							
Emissions	FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	3/4" minimum / 14-6 AWG					3/4" minimum / 14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG					3/4" minimum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174					21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4		26.2 / 11.9		38.8 / 17.6	lb / kg
Noise	< 25					< 50		dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Revenue grade inverter P/N: SExxxxH-US000NNC4
[4] Full power up to at 122°F / 50°C, for power derating information refer to https://www.solaredge.com/sites/default/files/se-temperature-derating-note-us.pdf

RoHS

EnLightEnergy
978 SW 2ND AVE GAINESVILLE , FL 32601
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REVISIONS	DESCRIPTION	DATE
REV	ENGG.	

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME: INVERTER DATASHEET

SHEET NUMBER: DS-03

APA SOLAR RACKING

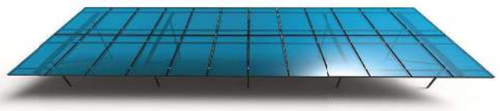
APASOLAR.COM
WHERE INNOVATION MEETS AUTOMATION

STANDARD SPECIFICATIONS

Engineering: APA Drawings can be PE stamped for all 50 States and territories
Grounding: Materials included
Foundation: Helical, Ground Screw or Ballast
Tilt Angles: 5°-35° Tilt Options
Racking Coating: Galvanized; G90
Foundation Coating: HDG
Wind Loading: Up to 150mph
Snow Loading: Up to 100psf
Mounting Orientation: 2-High in Portrait
Warranty: 25 Years

DUAL POST DESIGN

Ready Rack is a dual post design, making it an ideal choice for challenging sites with heavy wind or snow loads, and high topography. It comes standard with shallow micro helicals for soft or saturated soils, deep frost lines, shallow bedrock or high water tables. Ground screw or ballast foundation options are also available for sites with rock or non-penetrative soils.



READYRACK

The **Ready Rack™** system is one of our original designs, updated and optimized over the years with innovative features to bring down hardware cost and install time. It is one of the most versatile systems on the market, and is designed to easily accommodate changes with modules, layouts and terrain. The simplistic hardware allows contractors to streamline the install process with adjustable features built in. Helical foundations and quick-install bracing, along with carefully engineered, strong, and lightweight cee channels, are highly configurable and allow infinite solutions to common adjustment issues.

In business since 2008, APA offers a versatile line of racking and foundation solutions for projects in even the most challenging environments. With projects nationwide, APA is a trusted racking partner.

20-345 COUNTY ROAD X \\ P.O. BOX 224 \\ RIDGEVILLE CORNERS, OH 43555

419.267.5280 // SALES@APASOLAR.COM

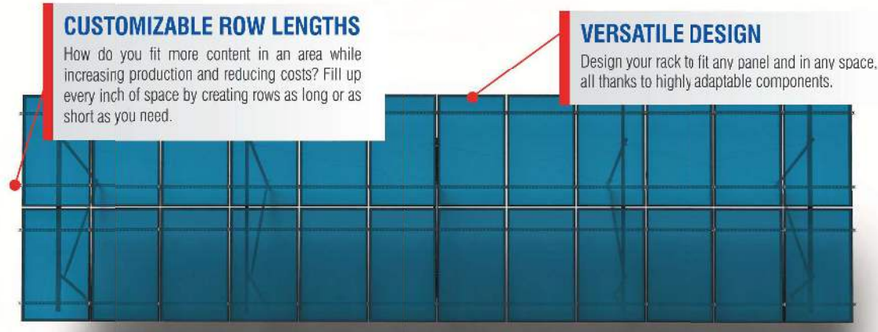
WHY USE READY RACK™?

CUSTOMIZABLE ROW LENGTHS

How do you fit more content in an area while increasing production and reducing costs? Fill up every inch of space by creating rows as long or as short as you need.

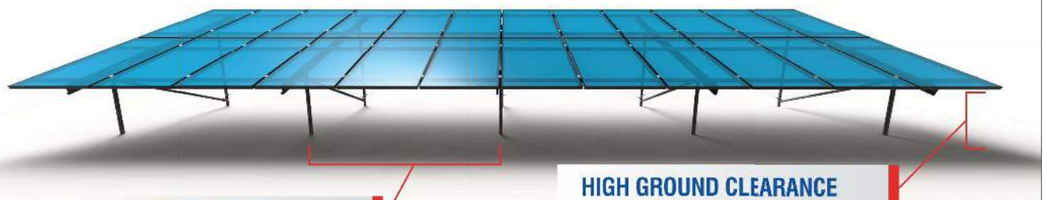
VERSATILE DESIGN

Design your rack to fit any panel and in any space, all thanks to highly adaptable components.



HIGH TERRAIN CAPACITY

By easily accommodating slopes over 20%, difficult terrain is no longer a problem.



INCREASED SPACING

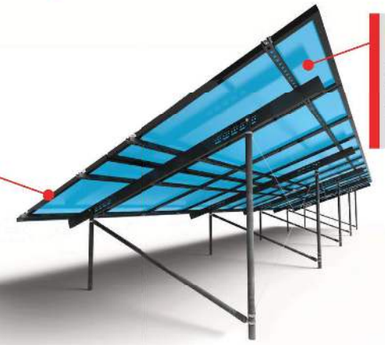
Longer spans means less parts, faster installation, and more money in your pocket.

HIGH GROUND CLEARANCE

Whether your project needs clearance for snow or room for maintenance, our highly adjustable foundations have got you covered.

INSTALLER FRIENDLY

Sleek and strong, our cee channel accommodates varying post heights, spans, tilts, and allows for adjustments in the field.



HIGH STRENGTH PARTS

Engineered for the toughest Northern winters and the harshest Southern hurricanes, Ready Rack has stood the test of time.

APA SOLAR RACKING

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REVISIONS

REV	ENGG.	DESCRIPTION	DATE

PERMIT DEVELOPER	
DATE	06/08/2023
DESIGNER	OSB
REVIEWER	

SHEET NAME
RACKING DATASHEET

SHEET NUMBER
DS-04

APA SOLAR RACKING

APALTERNATIVES.COM
WHERE INNOVATION MEETS AUTOMATION

ROCKY SOIL CONDITIONS

APA's ground screws are designed for sites with rock. The forged tip helps lead the screw straight and plumb. The threads of the screw bite and hold firmly into the soil without getting caught on rocks and cobbles. The heavy walled tube and welded connections allow massive amounts of torque and downward pressure to be applied helping the screw to advance into even the toughest soils.

SIMPLE INSTALL

Several types of equipment can be used to install APA's ground screws. Skid loaders or mini excavators with an auger attachment are among the most common installation equipment. Many drilling contractors can use a simple adaptor to drive ground screws without buying new equipment. Most pile driving rigs can be converted to rotary heads with little effort.

20-345 COUNTY ROAD X P.O. BOX 326 RIDGEVILLE CORNERS, OH 43555

GROUND SCREW

APA **Ground Screws** are manufactured for even the most challenging solar sites. Our ground screws use heavy walled tubing for the main shaft of the screw. The tips of the screw are forged, making them extremely hard, this is essential to help it penetrate into or pass by underground obstructions. The threads are welded with a patented automated welding process to provide a consistent and strong weld along the entire length of the thread. Ground screws come with a durable hot dipped galvanized coating that will protect them from corrosion.

In business since 2008, APA offers the most versatile line of racking and foundation solutions for projects in even the most challenging environments. With projects nationwide, APA is a trusted quality racking partner.

419.267.5280 SALES@APALTERNATIVES.COM

WHAT MAKES THE GROUND SCREW FOUNDATION SO CAPABLE?

HARD SOILS
Hard soils are why ground screws were designed. The forged tip and heavy duty steel tube allow for thousands of pounds of downforce and turning torque to be applied to the screw. This amount of torque and downforce allows rocks and cobbles to be pushed out of the way during installation

SOLID ROCK
Ground screws can be installed into solid rock. By utilizing the method of drilling a pilot hole and adding some gravel backfill. The ground screws are securely installed into the pilot hole using the threads of the screw and the gravel backfill then locks them into the solid rock

SANDY SOILS
The granular structure of sand has poor friction value making it hard for driven piles to perform well. However, the shape and threads of a ground screw displace and compact the sand around it when installed. This helps interlock the sand together and provides excellent holding power of the screw threads

HEIGHT ADJUSTMENT
Posts can be adjusted to the perfect height by simply raising or lowering the top post in or out of the screw. To secure the top post, simply tighten the three set screws

SHALLOW INSTALL
The ground screws can be installed as shallow as 30" depending on the soil. This allows for less chances of hitting underground obstructions

Diameter	Overall Length			
2.35"	40"	61"	73"	85"
3.00"	40"	61"	73"	85"
3.50"	40"	61"	73"	85"
4.00"	61"	73"	85"	
4.50"	61"	73"	85"	

Custom sizes are available - contact us for more information

SET SCREW OR FLANGE CONNECTION
Ground screws can be manufactured with a set of three screw nuts or a flange welded to the top of the post. The set screws and flange options allow the screws to be used with fixed tilt, tracking and other solar mounting applications

APA SOLAR RACKING

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ENGINEER OF RECORD

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SHEET NAME
ATTACHMENT DATASHEET

SHEET NUMBER
DS-05