PHOTOVOLTAIC ROOF MOUNT SYSTEM 08 MODULES-ROOF MOUNTED - 3.280 kWDC, 2.792 kWAC

DESIGN CRITERIA:

STORY: - ONE STORY

WIND EXPOSURE:- B

RISK CATEGORY:- II

WIND SPEED :- 115 MPH

ROOF TYPE: - ASPHALT SHINGLE

GROUND SNOW LOAD : - 40 PSF

COORDINATE: 44.526998, -88.047171

STRUCTURE DETAIL: - 2"X6" RAFTERS @24" O.C.

1296 REED ST, GREEN BAY, WI 54303, USA

GOVERNING CODES:

UTILITY HAS 24 HR. UNRESTRICTED ACCESS TO ALL PV

NATIONAL ELECTRICAL CODE 2017 (NEC)

INTERNATIONAL RESIDENTIAL CODE, 2015 (IRC)

INTERNATIONAL MECHANICAL CODE, 2015 (IMC)

INTERNATIONAL FUEL GAS CODE, 2015 (IFGC)

WISCONSIN UNIFORM DWELLING CODE 2016 (WUDC)

INTERNATIONAL EXISTING BUILDING CODE, 2015 (IEBC)

WISCONSIN (STATEWIDE) FIRE PREVENTION CODE 2015

INTERNATIONAL ENERGY CONSERVATION CODE, 2016 (IEC)

INTERNATIONAL PLUMBING CODE, 2015 (IPC)

INTERNATIONAL BUILDING CODE, 2015 (IBC)

SYSTEM COMPONENTS: LOCATED AT SERVICE ENTRANCE.

SYSTEM SUMMARY:

- (N) 08 REC SOLAR REC410AA PURE (410W) MODULES
- (N) 08 ENPHASE ENERGY IQ8A-72-2-US MICRO-INVERTERS
- (N) 01 JUNCTION BOX
- (E) 100A MAIN SERVICE PANEL WITH (E) 100A MAIN BREAKER (N) 30A NON-FUSED AC DISCONNECT
- (N) ENPHASE IQ COMBINER BOX 4

GENERAL NOTES

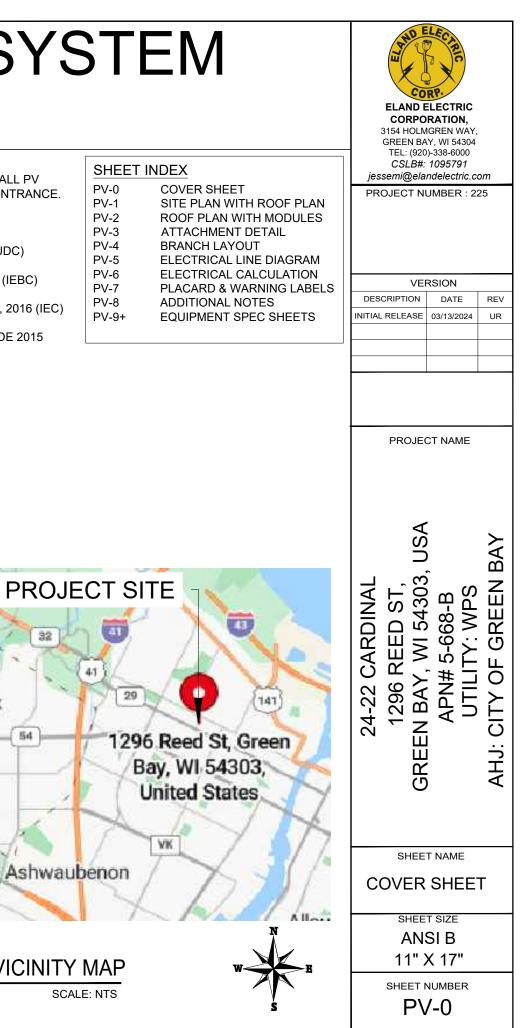
- ALL ELECTRICAL WORK SHALL BE PERFORMED BY A QUALIFIED LICENSED ELECTRICIAN AND/OR APPRENTICES WORKING UNDER THE DIRECT SUPERVISION OF THE LICENSED CONTRACTOR.
- ALL WORK CARRIED OUT SHALL COMPLY WITH THE SPECIFICATIONS. APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
- PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF AN DISCREPANCIES NOTED AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS, OR AUTHORITY HAVING JURISDICTION. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD A WRITTEN "RFI"(REQUEST FOR INFORMATION) PROPOSING AN ALTERNATIVE OR SEEKING CLARIFICATION.
- THE CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, ACCESSORIES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
- FALL ARREST PROTECTION PER OSHA REQUIREMENTS SHALL BE PROVIDED FOR ALL ROOF WORK.
- WHEN INSTALLING IN FIRE RATED AREAS, SEAL ALL PENETRATIONS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
- CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION. ALL DEBRIS AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES NOT PART OF THE SCOPE OF WORK AS IDENTIFIED IN THESE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
- DUE TO THE FACT THAT PV MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT, CONTRACTOR SHALL DISABLE THE ARRAY DURING INSTALLATION AND SERVICE BY SHORT CIRCUITING, OPEN CIRCUITING, OR COVERING ARRAY WITH AN OPAQUE COVER ACCORDING TO MANUFACTURER'S INSTRUCTION
- CONSTRUCTION LOADING ON THE ROOF, SUCH AS MATERIAL STAGED ON THE ROOF. SHALL BE LIMITED TO 20 PSF. CONCENTRATED LOADING SHALL BE AVOIDED TO PREVENT LOCALIZED DAMAGE TO THE ROOF.

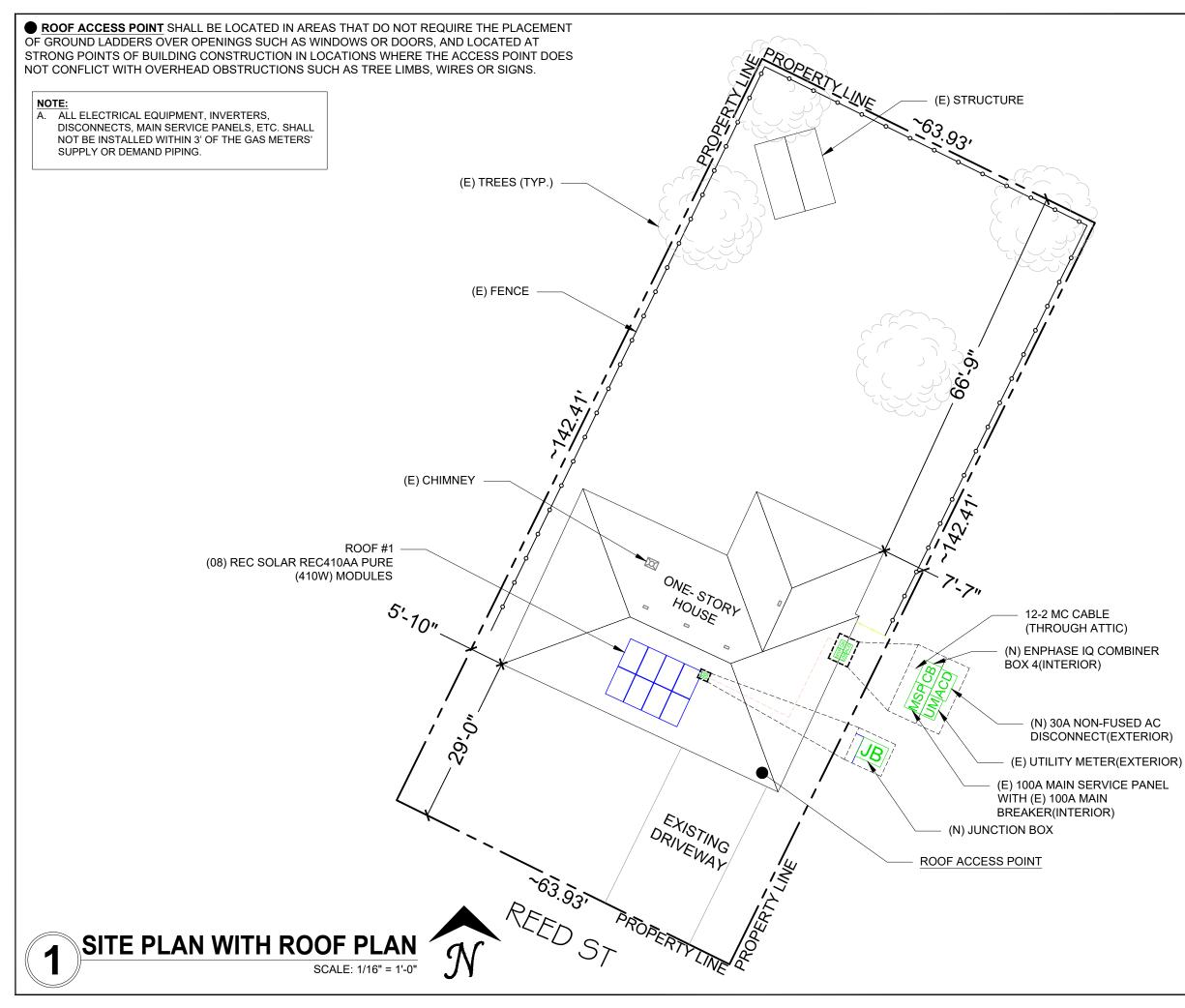
ARRAY

32 4.1 TSCH PARK 54 Ashwaubenon

AERIAL PHOTO
SCALE: NTS

2	
PV-0	SCALE: I





ELAND ELECTRIC CORPORATION, 3154 HOLMGREN WAY, GREEN BAY, WI 54304 TEL: (920)-338-6000 CSLB#: 1095791 jessemi@elandelectric.com PROJECT NUMBER : 225						
	ERSION					
INITIAL RELEAS	SE 03/13/2024 UR					
24-22 CARDINAL 24-22 CARDINAL 1296 REED ST, GREEN BAY, WI 54303, USA APN# 5-668-B UTILITY: WPS AHJ: CITY OF GREEN BAY						
SITE PLAN WITH ROOF PLAN						
SHEET SIZE						
ANSI B 11" X 17"						
11						

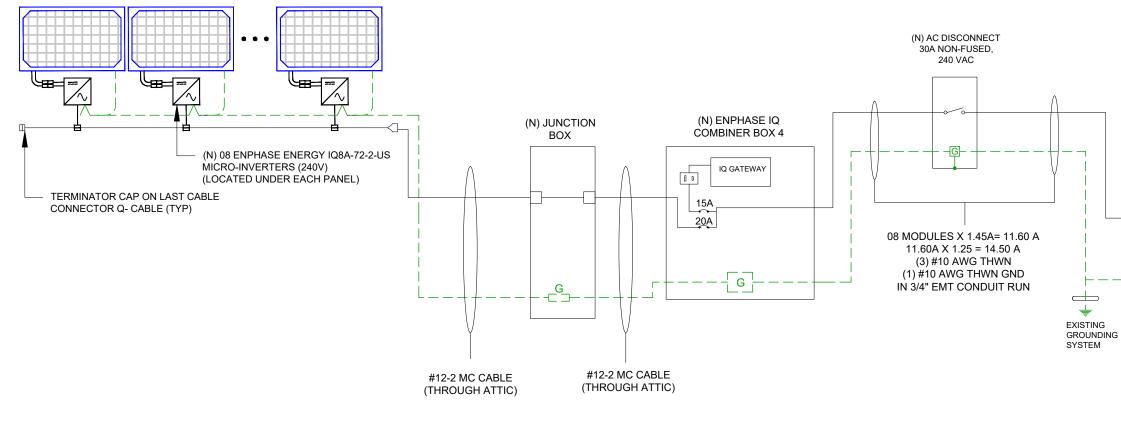
		BILL OF MATERIALS			
(08) REC SOLAR REC410AA PURE (410W) MODULES (08) ENPHASE ENERGY IQ8A-72-2-US MICRO INVERTERS	INTERCONNECTION	EQUIPMENT	QTY	DESCR	
(01) BRANCH OF 08 MODULES ARE CONNECTED IN PARALLEL	120% RULE - NEC 705.12(B)(2)(3)(b)	SOLAR PV MODULE	08	REC SOLAR REC410AA PURE (410W) MODU	
SYSTEM SIZE:- 08 x 410W = 3.280 kWDC	UTILITY FEED + SOLAR BACKFEED	INVERTER	08	ENPHASE ENERGY IQ8A-72-2-US MICRO-IN	
SYSTEM SIZE:- 08 x 349W = 2.792 kWAC	100A +20A = 120A	JUNCTION BOX	1	600V, 55A MAX, 4 INPUTS, MOUNTED ON RO	
	BUSS RATING x 120% 100A x 120% = 120A	COMBINER BOX	1	ENPHASE IQ COMBINER BOX 4	
	100A X 120% - 120A	AC DISCONNECT	1	30A NON-FUSED AC DISCONNECT, 240 VAC	
				1	

(N) 08 MICRO-INVERTERS IN BRANCH CIRCUIT #1

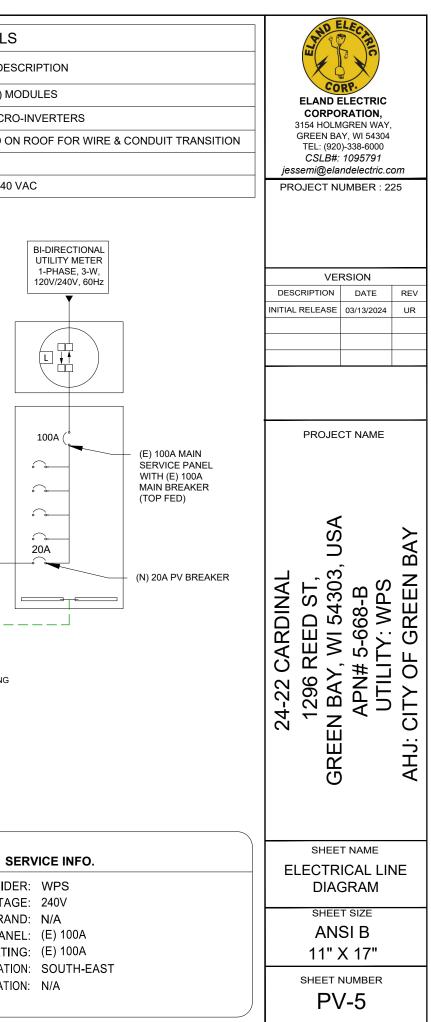
ELECTRICAL LINE DIAGRAM

SCALE: NTS

1



UTILITY PROVIDER: WPS MAIN SERVICE VOLTAGE: 240V MAIN PANEL BRAND: N/A MAIN SERVICE PANEL: (E) 100A MAIN CIRCUIT BREAKER RATING: (E) 100A MAIN SERVICE LOCATION: SOUTH-EAST SERVICE FEED LOCATION: N/A



REC ALPHA PURE SERIES PRODUCT SPECIFICATIONS

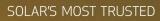
GENERAL D	ATA
Cell type:	132 half-cut REC heterojunction bifacial cells with lead-free, gapless technology, 6 strings of 22 cells in series
Glass:	$0.13 \text{ in } (3.2 \text{ mm}) \text{ solar glass with anti-reflective surface treatment} \\ \text{ in accordance with EN12150} \\$
Backsheet:	Highly resistant polymer (black)
Frame:	Anodized aluminum (black)
Junction box:	3-part, 3 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors:	Stäubli MC4 PV-KBT4/KST4 (4 mm²) in accordance with IEC 62852, IP68 only when connected
Cable:	12 AWG (4 mm²) PV wire, 43+ 47 in (1.1 + 1.2 m) in accordance with EN 50618
Dimensions:	$71.7x40x1.2$ in (19.91 ft $^2)/1821x1016x30$ mm (1.85 m $^2)$
Weight:	45 lbs (20.5 kg)
Origin:	Made in Singapore

	Origin:	Made in Singapore				
	ELECTRICAL DATA		Product	Code*: RECxx	xAA Pure	
	Power Output - P _{MAX} (Wp)	390	395	400	405	410
	Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5
	Nominal Power Voltage - $V_{_{MPP}}(V)$	40.6	41.0	41.4	41.8	42.2
STC	Nominal Power Current - I _{MPP} (A)	9.61	9.64	9.67	9.69	9.72
S	Open Circuit Voltage - V _{oc} (V)	48.4	48.6	48.8	49.1	49.4
	Short Circuit Current - I _{sc} (A)	10.38	10.39	10.40	10.41	10.42
	Power Density (W/ft²)	19.6	19.8	20.1	20.3	20.6
	Panel Efficiency (%)	21.1	21.4	21.6	21.9	22.2
	Power Output - P _{MAX} (Wp)	297	301	305	308	312
_	Nominal Power Voltage - $V_{_{MPP}}(V)$	38.3	38.6	39.0	39.4	39.8
NMOT	Nominal Power Current - I _{MPP} (A)	7.77	7.79	7.82	7.83	7.85
Z	Open Circuit Voltage - V _{oc} (V)	45.6	45.8	46.0	46.3	46.6
	Short Circuit Current - I _{sc} (A)	8.38	8.39	8.40	8.41	8.42
	Values at standard test conditions (STC: air mas	s AM 1.5, irradiance 10	0.75 W/sa ft (1000 W	/m²), temperature 7	7°F (25°C), based or	a production spread

Values at standard test conditions [STC-air mass AM15, irradiance 10.75 W/sq ft (1000 W/m²), temperature 77% [25°C], based on a production sprawith a tolerance of P_{MCV} V_{oc} & I₄ ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM15, irradiance 800 W/m², temperature 68% [20°C], windspeed 3.3 ft/s (1m/s). "Where xxx indicates the nominal power class (P_{MVV}) at STC above."</sub>

Installed by an REC Certified Solar Professiona System Size	Standard No	REC F	ProTrust Yes
Certified Solar Professiona	l No	Yes	Yes
System Size			100
	All	≤25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%
through an REC Certified S	olar Ýrofessi	ional instal	ler. Warranty
	Power Warranty (yrs) Labor Warranty (yrs) Power in Year 1 Annual Degradation Power in Year 25 The REC ProTrust Warranty through an REC certifiedS	Power Warranty (yrs) 25 Labor Warranty (yrs) 0 Power in Year 1 98% Annual Degradation 0.25% Power in Year 25 92% The REC ProTrust Warranty is only availat through an REC Certified Solar ProFess	Power Warranty (yrs) 25 25 Labor Warranty (yrs) 0 25 Power in Year 1 98% 98% Annual Degradation 0.25% 0.25%

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



REC ALPHO® PURE SERIES PRODUCT SPECIFICATIONS

COMPACT PANEL SIZE





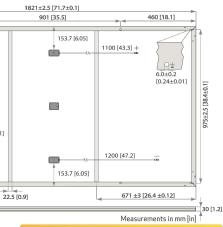


2022 WINNER

nter 50 a

award





CERTIFICATIONS

28 [1.1]

20.5±0.5

[0.8±0.02]

- 45 [1.8]

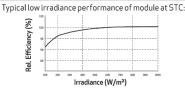
C 11±0.2 0 [0.43±0.01]

IEC 61215:2016, IEC 61730:2016, UL 61730						
IEC 62804	PID					
IEC 61701	Salt Mist					
IEC 62716	Ammonia Resistance					
UL 61730	Fire Type Class 2					
IEC 62782	Dynamic Mechanical Load					
IEC 61215-2:2016	Hailstone (35mm)					
IEC 62321	Lead-free acc. to RoHS EU 863/2015					
ISO 14001, ISO 9001, IEC 45001, IEC 62941						

	TEMF	PERATU	JRE RA	TINGS*
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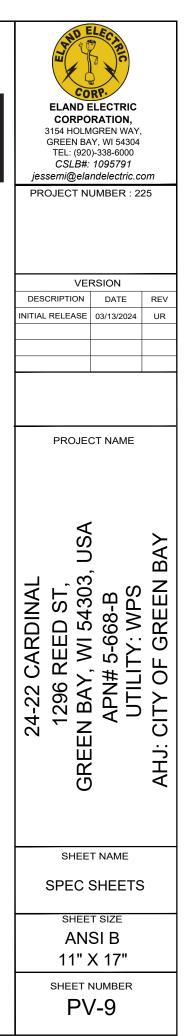
Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P _{MAX} :	-0.24 %/°K
Temperature coefficient of V_{oc}	-0.24 %/°K
Temperature coefficient of I _{sc} :	0.04 %/°K
*The temperature coefficients sta	ated are linear values
DELIVERY INFORMATION	
DELIVERY INFORMATION Panels per pallet:	33

LOW LIGHT BEHAVIOUR



REC Solar PTE. LTD. 20 Tuas South Ave.14 Singapore 637312 post@recgroup.com







IQ8 Series Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, softwaredefined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.

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IQ8SE-DS-0001-01-EN-US-2021-10-19



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

• Lightweight and compact with plug-n-play connectors

DATA SHEET

- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- · Optimized for the latest highpowered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 Series Microinverters

INPUT DATA (DC)		108-60-2-US	IQ8PLUS-72-2-US	108M-72-2-US	108A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-U
Commonly used module pairings ²	w	235 - 350	235 - 440	260 - 460	295 - 500	320 - 540+	295 - 500+
Module compatibility		60-cell/120 half-cell		60-cell/120	half-cell and 72-cell	/144 half-cell	
MPPT voltage range	v	27 - 37	29 - 45	33 - 45	36 - 45	38 - 45	38 - 45
Operating range	v	25 - 48			25 - 58		
Min/max start voltage	v	30 / 48			30 / 58		
Max input DC voltage	v	50			60		
Max DC current ³ [module lsc]	А			1	5		
Overvoltage class DC port				I	I		
DC port backfeed current	mA			C)		
PV array configuration		1x1 Ungrounded a	array; No additional D	C side protection requ	ired; AC side protecti	ion requires max 20A p	er branch circuit
OUTPUT DATA (AC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	108A-72-2-US	IQ8H-240-72-2-US	108H-208-72-2-L
Peak output power	VA	245	300	330	366	384	366
Max continuous output power	VA	240	290	325	349	380	360
Nominal (L-L) voltage/range⁴	v			240 / 211 - 264			208 / 183 - 250
Max continuous output current	А	1.0	1.21	1.35	1.45	1.58	1.73
Nominal frequency	Hz			6	0		
Extended frequency range	Hz			50 -	- 68		
Max units per 20 A (L-L) branch circuit⁵		16	13	11	11	10	9
Total harmonic distortion				<5	%		
Overvoltage class AC port				I	I		
AC port backfeed current	mA			3	0		
Power factor setting				1.4	0		
Grid-tied power factor (adjustable)				0.85 leading -	- 0.85 lagging		
Peak efficiency	%	97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	97	97
Night-time power consumption	mW			6	0		
MECHANICAL DATA							
Ambient temperature range				-40°C to +60°C (-40°F to +140°F)		
Relative humidity range				4% to 100% (condensing)		
DC Connector type				М	24		
Dimensions (HxWxD)			2	212 mm (8.3") x 175 mm	(6.9") x 30.2 mm (1.2	")	
Weight				1.08 kg (2	2.38 lbs)		
Cooling				Natural conve	ction – no fans		
Approved for wet locations				Ye	95		
Acoustic noise at 1 m		<60 dBA					
Pollution degree				PE)3		
Enclosure			Class II dou	uble-insulated, corrosi	on resistant polymeri	ic enclosure	
Environ. category / UV exposure rating				NEMA Туре	6 / outdoor		
COMPLIANCE							
		CA Rule 21 (UL 1741-5	SA), UL 62109-1, UL174	11/IEEE1547, FCC Part	15 Class B, ICES-000	3 Class B, CAN/CSA-0	C22.2 NO. 107.1-01
Certifications				Down Equipment and Shutdown of PV Syste			

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at https://link.enphase.com/module-compatibility (3) Maximum continuous input DC current is 10.6A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

manufacturer's instructions.

ELAND ELECTRIC CORPORATION, 3154 HOLMGREN WAY, GREEN BAY, WI 54304 TEL: (920)-338-6000 CSLB#: 1095791 jessemi@elandelectric.com PROJECT NUMBER : 225					
VEI DESCRIPTION INITIAL RELEASE	RSION DATE 03/13/2024	REV UR			
PROJE	CT NAME				
24-22 CARDINAL 1296 REED ST, GREEN BAY, WI 54303, USA	APN# 5-668-B UTILITY: WPS	AHJ: CITY OF GREEN BAY			
SPEC	T NAME	5			
SHEET SIZE ANSI B 11" X 17" SHEET NUMBER PV-10					

IQ8SE-DS-0001-01-EN-US-2021-10-19