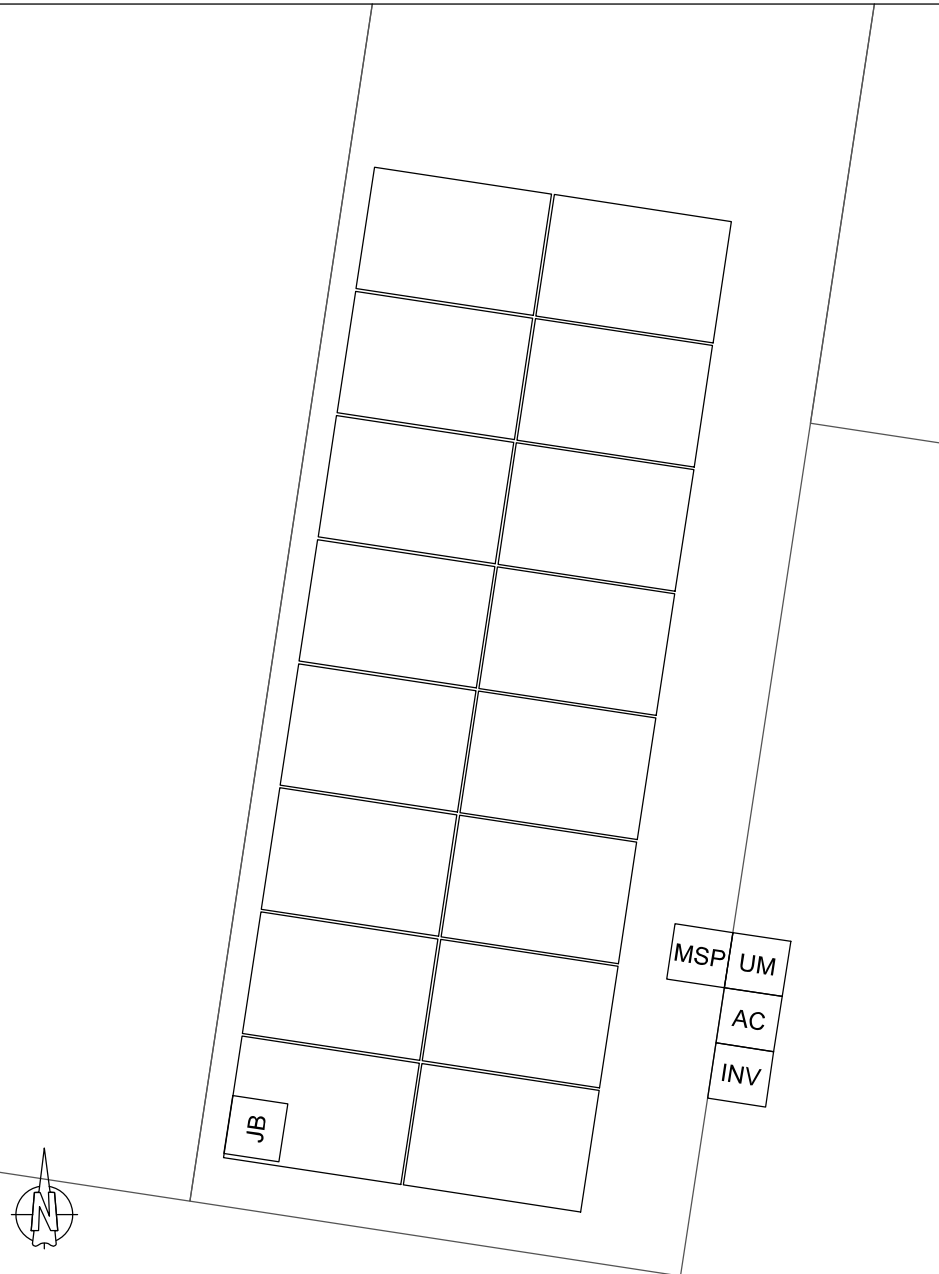




	1-10	11-20	21-30	31-40	41-50	51-60	SOLAREEDGE OPTIMIZER CHART																	
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8							<div>CLIENT: MICHAEL SCHLINK 485 SOUTHEAST COUNTRY CLUB ROAD, LAKE CITY, FL 32025 AHJ: COUNTY OF COLUMBIA UTILITY: FPL - FLORIDA POWER & LIGHT METER: ACD5917 *PHONE: FINANCE: OTHER</div>																	
9							<div>SYSTEM: SYSTEM SIZE (DC): 16 X 430 = 6,880 kW SYSTEM SIZE (AC): 5,000 kW @ 240V MODULES: 16 X SILFAB SOLAR: SIL-4300D OPTIMIZERS: 16 X SOLAREEDGE S440 INVERTER: SOLAREEDGE SE5000H-JSRGM (S1)</div>																	
10							<table><tr><th colspan="3">REVISIONS</th></tr><tr><th>NO.</th><th>REVISIONS</th><th>DATE</th></tr><tr><td>1</td><td>C.H.</td><td>9/19/2024</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr></table> <div> FREEDOM FOREVER LLC 2619 CONSULATE DR SUITE 800, ORLANDO, FL 32819 Tel: (800) 385-1075 GREG ALBRIGHT  CONTRACTOR LICENSE: CERTIFIED ELECTRICAL CONTRACTOR EC13008056</div>			REVISIONS			NO.	REVISIONS	DATE	1	C.H.	9/19/2024	-	-	-	-	-	-
REVISIONS																								
NO.	REVISIONS	DATE																						
1	C.H.	9/19/2024																						
-	-	-																						
-	-	-																						
							OPTIMIZER CHART																	
JOB NO: 496653		DATE: 9/19/2024		DESIGNED BY: C.H.		SHEET: PV-8																		

JOB HAZARD ANALYSIS

Crew leader to fill out all sections below, hold a pre-job safety meeting with all personnel, and upload this completed document and the Safety Plan to Site Capture

Ladder Access

- Ladders must be inspected before each use.
- Extension ladders must be set up on a firm and level surface at a 4-to-1 rise to run angle (or 75 degrees) and the top must be secured to the structure. Extension style ladders placed on uneven, loose or slippery surfaces must additionally have the base firmly anchored or lashed so the base will not slip out.
- Extension ladders must be used with walk-through devices or the ladder must extend 36" above the stepping off point.
- A-frame ladders must only be climbed with the ladder spreader bars locked in the open position; A-frame ladders shall not be climbed while in the closed position (ex, closed and used while leaned against a structure).

- Additional notes:

Mobile Equipment

- Only Qualified operators will operate equipment; operators must maintain a certification on their person for the equipment being operated.
- Type(s) of mobile equipment (Type/Make/Model):
- Qualified operator(s):

Material Handling and Storage

- Materials will be staged/stored in a way that does not present a hazard to client, personnel or public. Materials stored on the roof will be physically protect from failing or sliding off.

Fall Protection

- A site-specific plan for fall prevention and protection is required prior to starting work and must remain onsite at all times until work is complete; a fall rescue plan must be outlined and discussed among the crew prior to work start.
- First-person-Up (FPU) must install their anchor and connect before any other task, including installing other anchors. The Last-Person-Down (LPD) must be the only person on a roof uninstalling fall protection.

- FPCP (name and title):

- FPU and LPD (name and title):

Electrical Safety

- The Electrical Qualified Person (EQP) is required onsite to perform electrical work.
- All electrical work will be performed with equipment in an electrically safe condition (de-energized) unless approval has been granted prior to work.
- Service drops and overhead electrical hazards will be identified and protected from contact, as necessary.
- EQP (name and title):

Public Protection

- The safety of the Client and Public must be maintained at all times.
- The Client and the Public shall be prevented from entering the work zone through the use of barriers and/or signage, as required.
- Company, Client and Public property shall be protected from falling objects.
- Pets (including dogs) shall be secured by their owners prior to work start.
- The Client should not leave pets, family members, or others in charge or care of Employees, Contractors, or Temporary Workers.

- Crew leader responsible for communication with the client:

- Client and public is excluded from work area by barricades (N/A, Yes, No):

Training and Pre-Job Safety Briefing

- All employees onsite shall be made aware of the specific hazards of this project and review this HJA during a pre-job briefing, and their signature indicates awareness of site conditions and the plan to eliminate any hazards identified prior to and during the project.

- Crew leader (name/title):

- Crew member (name/title):

- Crew member (name/title):

- Crew member (name/title):

- Crew member (name/title):

- Crew member (name/title):

Airborne Contaminants:

- Asbestos-containing (Transite) piping (ACP) - Do not disturb (move, drill, cut fracture, etc.)
- Asbestos-containing thermal insulation (ACI) and Asbestos-containing duct wrapping (ACW) - do not disturb, no attic or crawlspace access is allowed if work to be performed could cause exposure to personnel, client or public.

- If yes, list specific tasks and protection in place:

Weather and Environment

- The site supervisor shall forecast the weather conditions at the job site, prior to crew arrival, in order to mitigate any hazards associated with inclement weather (heat, cold, wind, rain, etc.)
- The site supervisor will utilized a portable wind meter (anemometer) to verify actual onsite wind conditions, by checking at the ground and on any elevated work surface (ex, rooftop) prior to work start, at midday and prior to solar panel staging on a roof.
- Elevated work involving the moving or maneuvering of solar panels shall cease at 25mph (sustained wind) until wind subsides.
- Forecasted weather maximum temp (degrees f):

Heat Related Illness Prevention

- Employees shall have access to potable drinking water that is fresh, pure, and suitably cool. The water shall be located as close as practicable to the areas where employees are working. Water shall be supplied in sufficient quantity at the beginning of the work shift to provide at least one quart per employee per hour for drinking for the entire shift. Employees may begin the shift with smaller quantities of water if they identify the location and have effective means for replenishment during the shift to allow employees to drink on quart or more per hour. The frequent drinking of water shall be encouraged.
- Shade shall be present when temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work exceeds 80 degrees Fahrenheit, employees shall have and maintain one or more areas with shade at all times.
- New employees must be acclimatized. New employees will be monitored by their Crew Leader (site supervisor) for the first two (2) weeks of employment or longer when necessary.
- Employees will be allowed and encouraged to implement scheduled breaks during each shift. Employees must take cool-down breaks in the shade any time they feel the need to do so to protect them from overheating. Supervisors are REQUIRED to allow employees any break period they need during high heat conditions.
- Cool Vests are encouraged for all employees at all times during periods of high heat.
- Identify the location of the closet Occupational/Industrial Clinic or Hospital in case a crew member becomes ill.

What is the specific plan to provide and replenish sufficient water for all employees on site?

- If offsite replenish is necessary, where will you go to replenish water (location/address):

- Who will replenish the drinking water (name):

Restroom facilities

- Employees shall have access to restroom facilities with hand-washing stations. Use of onsite restroom is at the client's discretion (location is annotated below). If client does not give permission, location of suitable restroom facilities with hand-washing stations offsite will be provided. The onsite supervisor will identify location and make arrangements to ensure all employees have access at any point.

- Restroom facilities will be (circle one): Onsite - Offsite
- If Offsite, add location name and address:

Incident Reporting Procedure

- Contact your Site Supervisor

Name:

Phone:

- Contact your Manager

Name:

Phone:

- Contact your Site Supervisor

Name:

Phone:

With: Your full name, phone number, office location, brief description of what happen and when.

NOTE ADDITIONAL HAZARDS NOT ADDRESSED ABOVE
(add as many as necessary by using additional sheets)

Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:

CLIENT:
MICHAEL SCHLINK
485 SOUTHEAST COUNTRY CLUB ROAD,
LAKE CITY, FL 32025
AHJ: COUNTY OF COLUMBIA
UTILITY: FPL - FLORIDA POWER & LIGHT
METER: ACD5917
*PHONE:
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 16 X 430 = 6,880 kW
SYSTEM SIZE (AC): 5,000 kW @ 240V
MODULES: 16 X SILFAB SOLAR: SIL-4300D
OPTIMIZERS: 16 X SOLAREDGE S440
INVERTER: SOLAREDGE SE5000H4J/SRGM (S1)

REVISIONS		
NO.	REVISED BY	DATE
1	C.H.	9/19/2024
-	-	-
-	-	-



FREEDOM FOREVER LLC
2619 CONSULATE DR SUITE 800, ORLANDO,
FL 32819
Tel (800) 385-1075
GREG ALBRIGHT

Greg Albright

CONTRACTOR LICENSE:
CERTIFIED ELECTRICAL CONTRACTOR
EC13008056

SAFETY PLAN			
JOB NO: 496653	DATE: 9/19/2024	DESIGNED BY: C.H.	SHEET: PV-10

FOR INSTALLATION REFERENCE ONLY
SCAN QR CODE TO ACCESS REFERENCE LINK

FREEDOM REFERENCES



INSTALL HOTLINE

PV INSTALLATION REFERENCES



ENPHASE



SOLAREEDGE



TESLA

BATTERY INSTALLATION REFERENCES



Enphase Storage Systems



SOLAREEDGE Storage Systems



TESLA Storage Systems



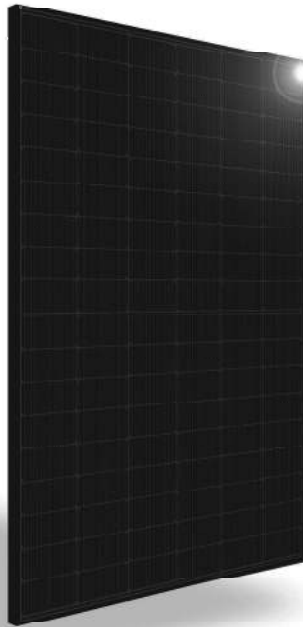
NON-BACKUP Battery Systems



Misc. Quick Guide

SILFAB PRIME NTC

SIL-430 QD



INTRODUCING NEXT-GENERATION N-TYPE CELL TECHNOLOGY

- Improved Shade Tolerance
- Improved Low-Light Performance
- Increased Performance in High Temperatures
- Enhanced Durability
- Reduced Degradation Rate
- Industry-Leading Warranty



SILFABSOLAR.COM



ELECTRICAL SPECIFICATIONS		430	
Test Conditions		STC	NOCT
Module Power (P _{max})	Wp	430	321
Maximum power voltage (V _{pmax})	V	33.25	31.02
Maximum power current (I _{pmax})	A	12.93	10.33
Open circuit voltage (V _{oc})	V	38.91	36.58
Short circuit current (I _{sc})	A	13.87	11.15
Module efficiency	%	22.1%	20.6%
Maximum system voltage (VDC)	V	1000	
Series fuse rating	A	25	
Power Tolerance	Wp	0 to +10	

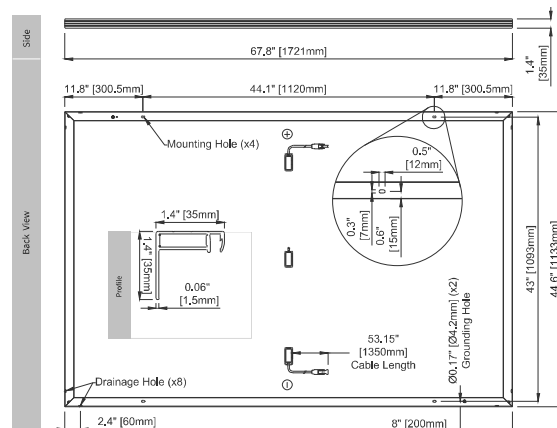
Measurement conditions: STC 1000 W/m² • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ± 3%
Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10 W.

MECHANICAL PROPERTIES / COMPONENTS	METRIC	IMPERIAL
Module weight	21 kg ± 0.2 kg	46.3 lbs ± 0.4 lbs
Dimensions (H x L x D)	1721 mm x 1133 mm x 35 mm	67.8 in x 44.6 in x 1.37 in
Maximum surface load (wind/snow)*	4000 Pa rear load / 5400 Pa front load	83.5 lb/ft ² rear load / 112.8 lb/ft ² front load
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	108 Half cells • N-Type Silicon solar cell 182 mm x 91 mm	108 Half cells • N-Type Silicon solar cell 7.16 in x 3.58 in
Glass	3.2 mm high transmittance, tempered, antireflective coating	0.126 in high transmittance, tempered, antireflective coating
Cables and connectors (refer to installation manual)	1350 mm, ø 5.7 mm, MC4 from Staubli	53.1 in, ø 0.22 in (12 AWG), MC4 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet	
Frame	Anodized aluminum (Black)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP68 rated, 3 diodes	

TEMPERATURE RATINGS		WARRANTIES	
Temperature Coefficient I _{sc}	0.04 %/°C	Module product workmanship warranty	25 years**
Temperature Coefficient V _{oc}	-0.24 %/°C	Linear power performance guarantee	30 years
Temperature Coefficient P _{max}	-0.29 %/°C		≥ 98% end 1st yr ≥ 94.7% end 12th yr ≥ 90.8% end 25th yr ≥ 89.3% end 30th yr
NOCT (±2 °C)	45 °C		
Operating temperature	-40/+85 °C		

CERTIFICATIONS		SHIPPING SPECS	
Product	UL 61215, UL 61730, CSA C22.2#61730, IEC 61215, IEC 61730, IEC 61701 (Salt Mist Corrosion), IEC 62716 (Ammonia Corrosion), CEC Listed, UL Fire Rating: Type 2	Modules Per Pallet:	26 or 26 (California)
		Pallets Per Truck	32 or 30 (California)
Factory	ISO9001:2015	Modules Per Truck	832 or 780 (California)

* ⚠ Warning: Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.
** 12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at silfab.com.
PAN files generated from 3rd party performance data are available for download at: silfab.com/downloads.



SILFAB SOLAR INC.

1770 Port Drive
Burlington WA 98233 USA
T +1 360.569.4733
info@silfab.com
SILFABSOLAR.COM

7149 Logistics Lane
Fort Mill SC 29715 USA
T +1 839.400.4338

240 Courteneypark Drive East
Mississauga ON L5T 2Y3 Canada
T +1 905.255.2501
F +1 905.696.0267

Silfab - SIL-430-QD-20240227
No reproduction of any kind is allowed without permission.
Data and information is subject to modifications without notice.
© Silfab Solar Inc., 2023. Silfab Solar is a registered trademark of Silfab Solar Inc.

SolarEdge Home Wave Inverter For North America

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



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014-2023 per articles 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

/ SolarEdge Home Wave Inverter

For North America

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

Applicable to inverters with part number	SEXXXXH-XXXXXBXX4					SE11400H-XXXXXBXX5	Units	
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
OUTPUT								
Rated AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	Vac	
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	✓	-	✓	-	-	✓	Vac	
AC Frequency (Nominal)	59.3 - 60 - 60.5®						Hz	
Maximum Continuous Output Current @240V	16	21	25	32	42	47.5	A	
Maximum Continuous Output Current @208V	16	-	24	-	-	48.5	A	
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1						A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	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						Vdc	
Maximum Input Current @240V ⁽²⁾	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	600k Sensitivity							
Maximum Inverter Efficiency	99.2						%	
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							

(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.

/ SolarEdge Home Wave Inverter

For North America

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

Applicable to inverters with part number	SEXXXXH-XXXXXXBX4					SE11400H-XXXXXXBX5	
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), wireless SolarEdge Home Network (optional) ⁽³⁾ , Wi-Fi (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽⁴⁾						
Consumption Metering							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown – NEC 2014-2023 per articles 690.11 and 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. NF-07						
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 34 (H), CSA C22.3 No. 9						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range	1" Maximum / 14 – 6 AWG			1" Maximum / 14 – 4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1 – 2 strings / 14 – 6 AWG			1" Maximum / 1 – 3 strings / 14 – 6 AWG			
Dimensions with Safety Switch (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174			21.06 x 14.6 x 7.3 / 535 x 370 x 185	21.06 x 14.6 x 8.2 / 535 x 370 x 208 ⁽⁵⁾	in / mm	
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9		38.8 / 17.6	44.9 / 20.4 ⁽⁵⁾	lb / kg
Noise	< 25			< 50			dBA
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁶⁾						°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

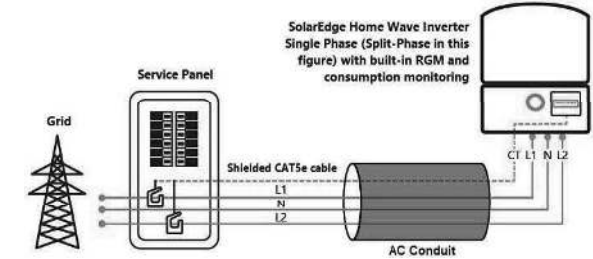
(3) For more information, refer to the [SolarEdge Home Network](#) datasheet.

(4) Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxH-US000B04. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT10750-400NA-20, 20 units per box.

(5) SE11400H-US000B05 is the updated P/N, though SE11400H-US000B04 will still be available. All specifications are similar for both models, **EXCLUDING** the weight and dimensions (HxWxD). The weight and dimensions of SE11400H-US000B04 are 17.6 [kg] and 21.06x14.6x7.3 / 535x370x185 [in/mm], accordingly.

(6) Full power up to at least 50°C / 122°F; for power de-rating information refer to the [Temperature Derating Technical Note for North America](#).

How to Enable Consumption Monitoring



By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills.

Power Optimizer

For North America

S440, S500



POWER OPTIMIZER

PV power optimization at the module level

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

* Expected availability in 2022

solaredge.com

solaredge

/ Power Optimizer

For North America

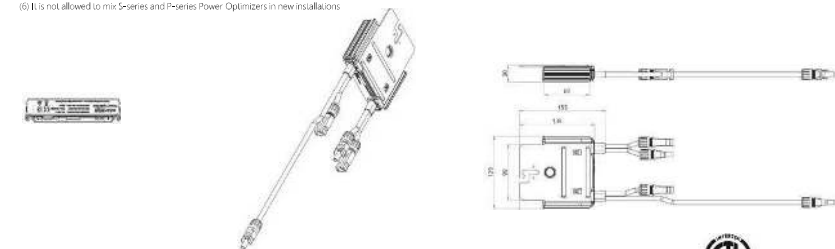
S440, S500

	S440	S500	Unit
INPUT			
Rated Input DC Power ⁽¹⁾	440	500	W
Absolute Maximum Input Voltage (Vdc)		60	Vdc
MPP Operating Range		8 – 60	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15	Adc
Maximum Efficiency		99.5	%
Weighted Efficiency		98.6	%
Overvoltage Category		II	
OUTPUT DURING OPERATION			
Maximum Output Current		15	Adc
Maximum Output Voltage		60	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer		1 ± 0.1	Vdc
STANDARD COMPLIANCE			
Photovoltaic Rapid Shutdown System		NEC 2014, 2017 & 2020	
EMC		FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3	
Safety		IEC62109-1 (class II safety), UL1741	
Material		UL94 V-0, UV Resistant	
RoHS		Yes	
Fire Safety		VDE-AR-E 2100-712:2013-05	
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage		1000	Vdc
Dimensions (W x L x H)		129 x 153 x 30 / 5.07 x 6.02 x 1.18	mm / in
Weight (including cables)		655 / 1.5	g / lb
Input Connector		MC4 ⁽²⁾	
Input Wire Length		0.17/0.32	m / ft
Output Connector		MC4	
Output Wire Length		(+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32	m / ft
Operating Temperature Range ⁽³⁾		-40 to +85	°C
Protection Rating		IP68 / Type6B	
Relative Humidity		0 – 100	%

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

PV System Design Using a SolarEdge Inverter	Single Phase HD-Wave	Three Phase for 208V grid	Three Phase for 277/480V grid
Minimum String Length (Power Optimizers)	S440, S500	8	14
Maximum String Length (Power Optimizers)		25	50 ⁽⁴⁾
Maximum Nominal Power per String		5700 (6000 with SE7600-US-SE1400-U)	6000
Maximum Allowed Connected Power per String ⁽⁵⁾ (Permitted only when the difference in connected power between strings is 1000W or less)		Refer to Footnote 5	One String 7200W Two strings or more 7800W
Parallel Strings of Different Lengths or Orientations		Y	

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



© SolarEdge Technologies, Inc. All rights reserved. SOLAREEDGE, the SolarEdge logo, OPTIMIZED BY SOLAREEDGE are trademarks or registered trademarks of SolarEdge Technologies, Inc. All other trademarks mentioned herein are trademarks of their respective owners. Date: February 8, 2022 DS-000018-NA. Subject to change without notice.



Product specifications

Eaton DG221URB

Catalog Number: DG221URB

Eaton General duty non-fusible safety switch, single-throw, 30 A, 240 V, NEMA 3R, Rainproof, Painted galvanized steel, Two-pole, Two-wire

General specifications

Product Name	Catalog Number
Eaton general duty non-fusible safety switch	DG221URB
	UPC
	782113120232
Product Length/Depth	Product Height
6.88 in	10.81 in
Product Width	Product Weight
6.38 in	6 lb
Warranty	Certifications
Eaton Selling Policy 25-000, one (1) year UL Listed from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.	Catalog Notes
	WARNING! Switch is not approved for service entrance unless a neutral kit is installed.



Product specifications

Product Category
General duty safety switch

Enclosure material
Painted galvanized steel

Type
Non-fusible, single-throw

Fuse configuration
Non-fusible

Number of wires
2

Enclosure
NEMA 3R

Voltage rating
240V

Amperage Rating
30A

Number Of Poles
Two-pole

Resources

Catalogs
Eaton's Volume 2—Commercial Distribution

Multimedia
Double Up on Safety
Switching Devices Flex Center

Specifications and datasheets
Eaton Specification Sheet - DG221URB



Eaton Corporation plc
Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com
© 2023 Eaton. All Rights Reserved.

Eaton is a registered trademark.
All other trademarks are property of their respective owners.



Eaton.com/socialmedia

S-5!®

The Right Way!™

NEW

NOW AVAILABLE
IN ALUMINUM

ProteaBracket™

A versatile bracket for mounting solar PV to trapezoidal roof profiles

ProteaBracket™ is now made in aluminum. Still the most versatile trapezoidal metal roof attachment solution on the market, the S-5! ProteaBracket just got better!

The bracket features an adjustable attachment base and module attachment options to accommodate different roof profile dimensions and mounting options.

Our pre-applied EPDM gasket with peel and stick adhesive makes installation a snap, ensuring accurate and secure placement the first time.

With no messy sealants, faster installation, and a weather-proof fit, ProteaBracket offers you the most versatile solar attachment solution available.

ProteaBracket* can be used for rail mounting or "direct-attach" with S-5! PVKIT™

*When ProteaBracket is used in conjunction with the S-5! PVKIT, an additional nut is required during installation.

Features and Benefits

- 34% lighter - saves on shipping
- Stronger L-Foot™
- Load-tested for engineered application
- Corrosion-resistant materials
- Adjustable - Fits rib profiles up to 3"
- Peel-and-Stick prevents accidental shifting during installation
- Fully pre-assembled
- 25-year warranty*

*See www.S-5.com for details.

ProteaBracket™



888-825-3432 | www.S-5.com



S-5!®

The Right Way!™

ProteaBracket™ is the perfect solar attachment solution for most trapezoidal rib, exposed-fastened metal roof profiles!

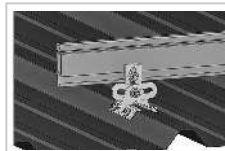
ProteaBracket™ is compatible with common metal roofing materials and comes with a pre-applied EPDM gasket on the base.

Note: All four pre-punched holes must be used to achieve tested strength. Fasteners are provided.

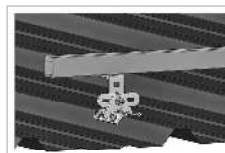
For design assistance, ask your distributor, or visit www.S-5.com for the independent lab test data that can be used for load-critical designs and applications. Also, please visit our website for more information including metallurgical compatibilities and specifications.

S-5!® holding strength is unmatched in the industry.

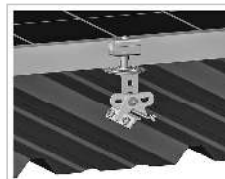
Multiple Attachment Options:



Side
Mount Rail



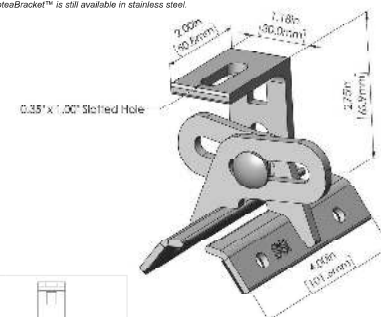
Bottom
Mount Rail



w/ S-5!
PVKIT™
(rail-less)

ProteaBracket™

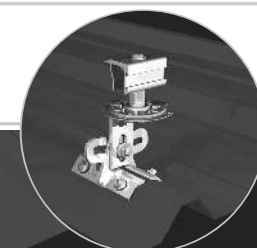
ProteaBracket™ is still available in stainless steel.



ProteaBracket fits profiles
up to 3 inches

INSTALLATION:

- No surface preparation needed.** (1) Wipe away excess oil and debris. (2) Peel off adhesive release paper. (3) Align and mount bracket directly onto crown of panel. (4) Secure ProteaBracket through pre-punched holes, using piercing-point S-5! screws.



ProteaBracket™ and the S-5! PVKIT™ 2.0 mounted on a trapezoidal roof profile

S-5! Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, bolt torque, patents, and trademarks, visit the S-5! website at www.S-5.com. Copyright 2019 MetalRoof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. Version 07089.

Distributed by

NXT HORIZON[®]

UNIRAC[®]
BETTER SOLAR STARTS HERE

UNIRAC
25
YEAR
FULL SYSTEM WARRANTY

DISCOVER YOUR NXT HORIZON[®]

The culmination of over two decades of experience. Thoughtful design, rigorous engineering, world class support, and a reliable supply chain are the foundation of what makes us confident that NXT HORIZON[®] is the NXT Level of DESIGN, SIMPLICITY, and VALUE.

STRONGHOLD[™] RAIL CLAMP
DARK: SHCLAMPD1
MILL: SHCLAMPMT
Adaptable rail connection to attachments allows click-in feature compatibility with almost all of Unirac's attachments.

STRONGHOLD[™] ATTACHMENT KIT
DARK: SHCPKTD1
MILL: SHCPKMT1
Rail clicks into the clamps attached to the Stronghold[™] base. Open slot in L-foot allows drop-in rail clamp.

Alternative attachment options:
SOLARHOOKS
FLASHLOC PRO
FLASHLOC DDD

NXT HORIZON[®] RAIL
DARK: 168RLD1
MILL: 168RLMT
Strong, lightweight open channel rail with indelible, easy, unfalling and cataloged wire management section.

NXT HORIZON[®] RAIL SPLICE
RISPLCM1
Structural internal splice that does not interfere with roof connection nor module connection.
Pre-assembled thread cutting balls.

NXT HORIZON[®] OMBO CLAMP
DARK: OCLAMPD1
MILL: OCLAMPMT
Clicks into rail anywhere (even where there are cables!)
Self-standing clamp with spring combines as turn mid and end clamp.
Clamps 30-40 mm modules.

1/2 inch module spacing for efficiency.
Unirac-quality bonding that works both as mid and end clamps.

NXT HORIZON[®] CAP KIT
ENDCAPD1
Make the install look clean with the end cap kit designed to complement the module end clamp and rail ends.

WIRE MANAGEMENT OPTIONS

NXT HORIZON[®] MLPE & LUG CLAMP
LUGCM1PE1
Works as either MLPE Mount or Grounding lug connection to the rail. Why source two parts when one can do the job?

NXT HORIZON[®] WIRE MANAGEMENT CLIP
WRMCLPDT
Aesthetic, yet functional accessory that works to help installers keep wires inside the rail. No zip-ties required. Optional zip tie loop for extra wire management capabilities.

NXT HORIZON[®] NORTH/SOUTH WIRE MANAGEMENT CLIP
WRMCRSD1
An elegant solution to help installers get to the homo run. The same hardware works to provide both easy entry to rail and adjustability for cable thickness.

ALL NXT HORIZON[®] SYSTEMS INCLUDE A FREE PERMITTING PLANSET DESIGN - FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR EMAIL NXTPERMITS@UNIRAC.COM



Certificate: 70131735
Project: 80182385

Master Contract: 266909
Date Issued: 2023-11-29

Downward Design Load (lb/ft ²)	33.9
Upward Design Load (lb/ft ²)	33.9
Down-Slope Load (lb/ft ²)	16.5

Model	NXT UMOUNT	-	Flush-to-Roof is an extruded aluminum rail PV racking system that is installed parallel to the roof in landscape or portrait orientations.
-------	---------------	---	--

NXT UMOUNT

The system listed is designed to provide bonding/grounding, and mechanical stability for photovoltaic modules. The system is secured to the roof with the L-Foot components through the roofing material to building structure. Modules are secured to the racking system with aluminum mid clamps and aluminum end clamps. The modules are bonded to the racking system with bonding mid and end clamps with piercing points. Fire ratings of Class A with Type 1, 2, 3 (with metallic frame), 10 (with metallic frame), 19, 22, 25, 29, or 30 for steep and low slope. Tested at 5" interstitial gap which allows installation at any stand-off height.

The grounding of the system is intended to comply with the latest edition of the National Electrical Code, to include NEC 250 & 690. Local codes compliance is required, in addition to national codes. All grounding/bonding connections are to be torqued in accordance with the Installation Manual and the settings used during the certification testing for the current edition of the project report.

Latest Install Manual revision: PUB2023NOV10

UL 2703 Mechanical Load ratings for tested module area 21.86 sq ft:

NXT Systems without DTD Butyl Attachment P30817211, Rail Splice P30808218, or Rail Clamp P30817214	
Downward Design Load (lb/ft ²)	113.7
Upward Design Load (lb/ft ²)	51.1
Down-Slope Load (lb/ft ²)	16.8

NXT Systems with DTD Butyl Attachment P30817211, Rail Splice P30808218, or Rail Clamp P30817214	
Downward Design Load (lb/ft ²)	51.1
Upward Design Load (lb/ft ²)	51.1



Certificate: 70131735
Project: 80182385

Master Contract: 266909
Date Issued: 2023-11-29

Down-Slope Load (lb/ft ²)	16.8
---------------------------------------	------

UL 2703 and TIL Mechanical Load ratings tested module area 27.76 sq ft:

NXT Systems without DTD Butyl Attachment P30817211, Rail Splice P30808218, or Rail Clamp P30817214	
Downward Design Load (lb/ft ²)	50.1
Upward Design Load (lb/ft ²)	22.2
Down-Slope Load (lb/ft ²)	8.0

NXT Systems with DTD Butyl Attachment P30817211, Rail Splice P30808218, or Rail Clamp P30817214	
Downward Design Load (lb/ft ²)	39.47
Upward Design Load (lb/ft ²)	22.2
Down-Slope Load (lb/ft ²)	8.0

UL 2703 and TIL Mechanical Load ratings tested module area 29.49 sq ft:

NXT Systems with all components included in PUB2023NOV10 Install Manual	
Downward Design Load (lb/ft ²)	37.06
Upward Design Load (lb/ft ²)	20.97
Down-Slope Load (lb/ft ²)	7.53

Model	SM Ascender	-	One or two row elevated or non-elevated roof system is an extruded aluminum rail PV racking system that is installed to the roof in portrait orientation.
-------	-------------	---	---

SM Ascender

The system listed is designed to provide bonding/grounding, and mechanical stability for photovoltaic modules. The system is secured to the roof with the L-Foot components through the roofing material to building structure. Modules are secured to the racking system with aluminum mid clamps and aluminum end clamps. Fire rating of Class A when installed over non-combustible roofing materials.



February 5, 2024

Unirac, Inc.
1411 Broadway Boulevard NE
Albuquerque, New Mexico 87102
TEL: (505) 242-6411
FAX: (505) 242-6512

Re.: Innova Technologies No.: 124-099-1000
Unirac NXT U-Mount Design Tool – Florida

Attn: Engineering Services

Innova Technologies Inc. has reviewed Unirac's NXT U-Mount design tool and analysis, including the U-Builder online tool. NXT U-mount is a proprietary system to support Photovoltaic (PV) panels on a rooftop structure.

All analysis and information in the NXT design tool's formulas and tables comply with the following:

- 2009-2021 International Building Code by International Code Council Inc. with provisions from SEAO PV-2
- ASCE/SEI 7-05 through 7-22 Minimum Design Loads and Other Structures, by American Society of Civil Engineers.
- Florida Building Code 2020, and 2023 Editions
- 2005 - 2020 Aluminum Design Manual, by the Aluminum Association.

This letter certifies that the structural analysis of the racking members and their direct components comply with the above codes and methodologies. This Design tool does not review the existing roof structure, or the PV panels themselves.

The U-Builder tool should be used under review of a registered design professional where required by the authority having jurisdiction.

For more information, see the construction drawings, and manufacturer installation instructions.

Best Regards,



Adriana Gonorazky
Sr. Vice President
Innova Technologies, Inc.



Exp 02/28/2025
02/06/2024

