S-5!®
The Right Way!®

PVKIT® 2.0 MidGrab or EdgeGrab

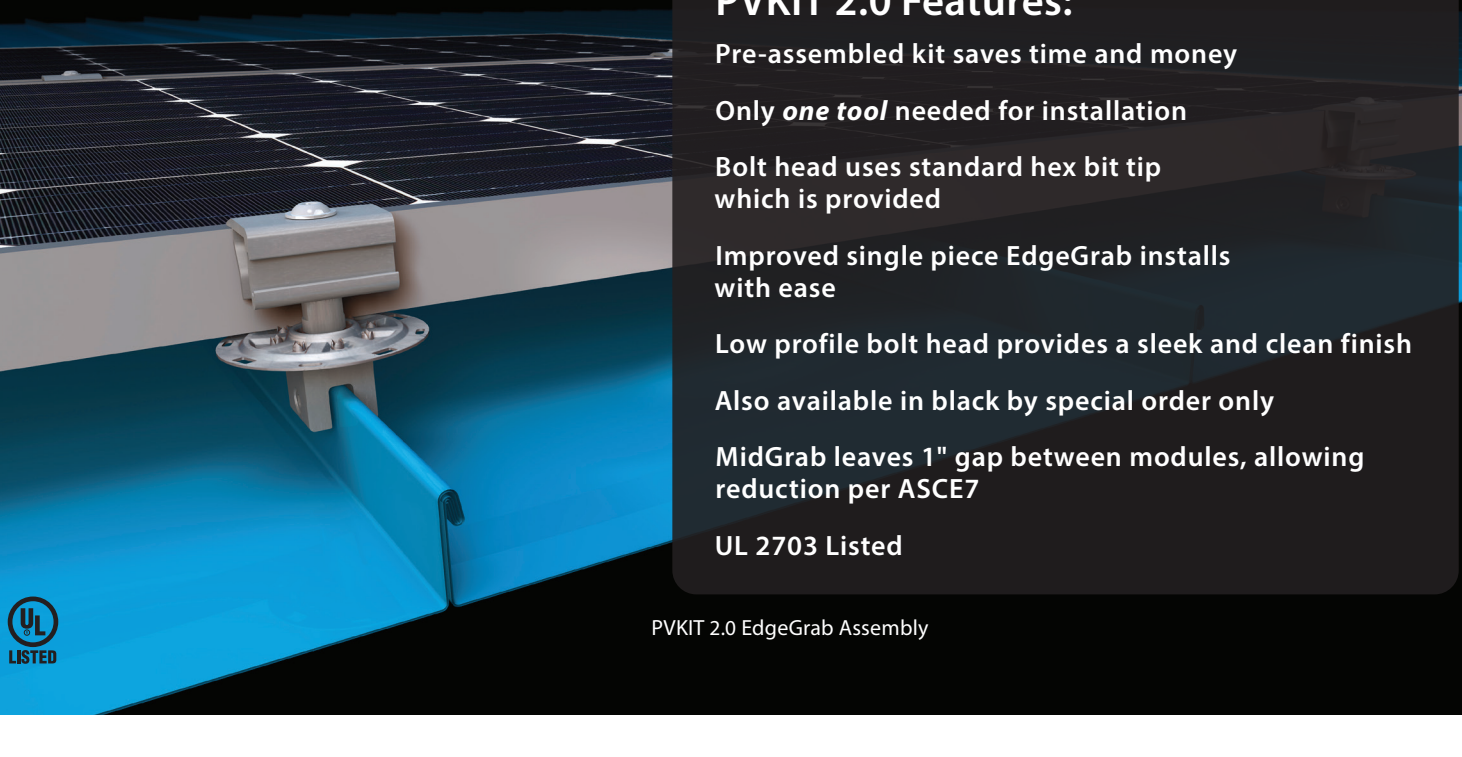
The concept of combining photovoltaic arrays with standing seam metal roofing is growing—and for good reasons. A standing seam metal roof has a life expectancy consistent with that of framed PV modules—a 30-year power source on a 40-year roof, along with zero-penetration technology, creates the most sustainable roof system available with alternative power generation, all without compromising the roof manufacturer's warranty! PVKIT® 2.0 is also a great solution for attaching PV modules directly to many exposed fastener roofs when paired with S-5! brackets.

S-5! has introduced a new and improved PVKIT, boasting an improved installation experience for PV mounting technology. The kit comes preassembled with either the MidGrab or EdgeGrab for easier and more efficient installation. The kits were designed with thread lock on the standoff bolt so that the grab will seat to the PV Module frame by using one tool to drive the top bolt, eliminating a step required in the previous PVKIT. The PVKIT 2.0 features bonding teeth, which are more aggressive to secure a better ground path. No lugs or wire required except to connect one string of modules to another and to ground the system.

The S-5 PVKIT 2.0 is built to save you time and money —
The Right Way® to install solar to your metal roof.

PVKIT 2.0 Features:

- **Pre-assembled kit saves time and money**
- **Only *one tool* needed for installation**
- **Bolt head uses standard hex bit tip which is provided**
- **Improved single piece EdgeGrab installs with ease**
- **Low profile bolt head provides a sleek and clean finish**
- **Also available in black by special order only**
- **MidGrab leaves 1" gap between modules, allowing reduction per ASCE7**
- **UL 2703 Listed**



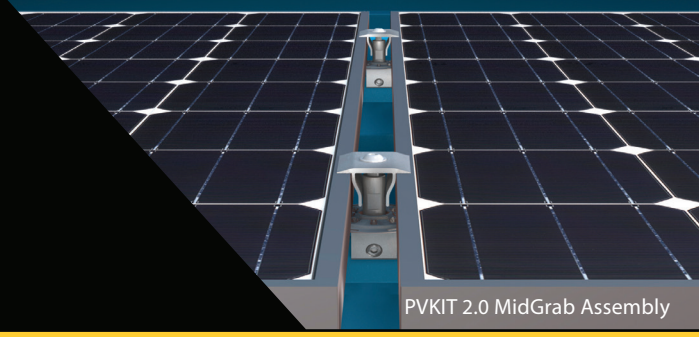
PVKIT 2.0 EdgeGrab Assembly

UL LISTED

MADE IN THE USA

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

S-5!®
The Right Way!®


PVKIT 2.0 MidGrab Assembly

PVKIT® 2.0: New Design

LISTED

The PVKIT 2.0 is furnished with the hardware shown at right, excluding the attachment clamp, which is supplied separately. The PVKIT 2.0 is compatible with most common metal roofing materials, including copper.

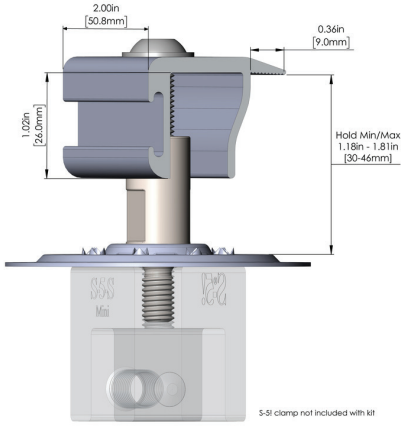
The Module Placement Bevel Guide makes the module placement easier. The mounting disk is multi-directional and rails are not required. The PV grab ears, holding the solar panels in place, are broader to allow for ease of installation and precise module engagement.

Accommodating module thicknesses between 30 and 46mm, the PVKIT 2.0 fits the majority of solar panels on the market. Using the S-5! mini clamps, it fits most standing seam metal roofs. When paired with other S-5! products, the PVKIT 2.0 and EdgeGrab or MidGrab will also work on most exposed fastener including corrugated metal roofs. The MidGrab is designed to fit mid conditions (two adjacent panels), while the new EdgeGrab is designed specifically for end conditions.

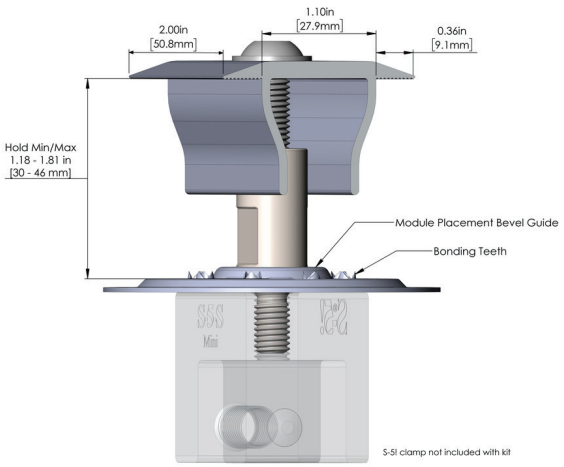
Wind dynamics are complex; thus, each system should be reviewed by a qualified licensed professional who understands wind effects prior to purchase and installation. For more detailed information including specifications, installation instructions, and CAD drawings, visit www.S-5.com or your PVKIT 2.0 distributor.

The PVKIT 2.0 continues to be the easiest, most cost-effective way to install solar panels directly to standing seam and exposed fastener metal roofs, remaining the most popular choice worldwide.

PVKIT 2.0 EdgeGrab



PVKIT 2.0 MidGrab

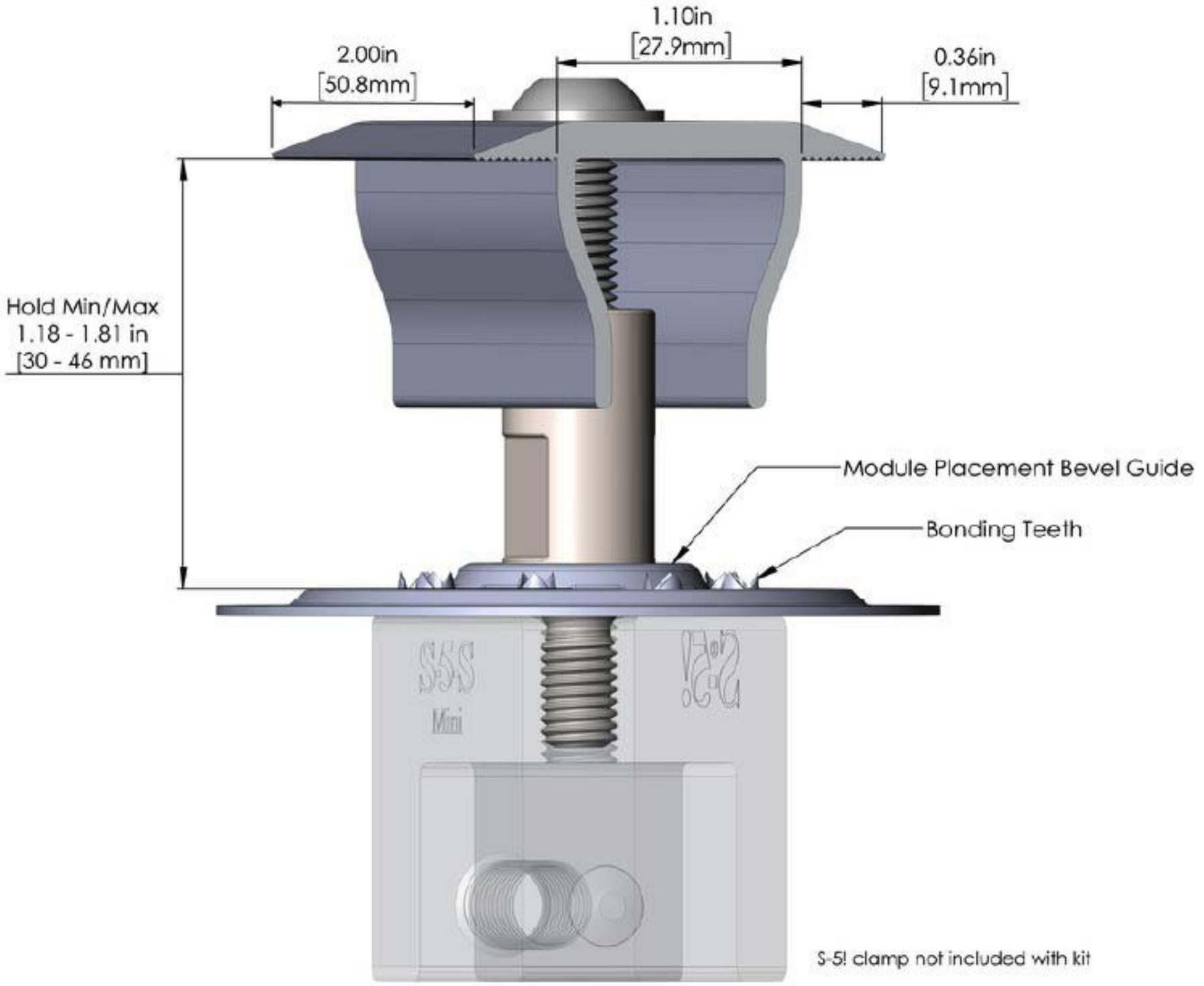


Certain components featured in illustration may not be UL listed. Due to the variety of attachment needs, S-5-PVKIT 2.0 are sold separately from S-5! clamps.

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

The independent lab test data found at www.S-5.com can be used for load-critical designs and applications.

Distributed by:


1.10in
[27.9mm]
2.00in
[50.8mm]
0.36in
[9.1mm]
Hold Min/Max
1.18 - 1.81 in
[30 - 46 mm]
Module Placement Bevel Guide
Bonding Teeth
S-5! clamp not included with kit

S-5!®
The Right Way!™

The right way™ to attach almost anything to metal roofs!

Installation Instructions

S-5!® Warning! Please use these products responsibly! Visit our website or contact your S-5! distributor for available load test results. The user and/or installer of these parts is responsible for all necessary engineering and design to ensure the S-5! clamps have been properly spaced and configured. **Notice to S-5! users:** Due to the many variables involved with specific panel products, climates, snow melt phenomena, and job particulars, the manufacturer cannot and does not express any opinions as to the suitability of any S-5! assembly for any specific application and assumes no liability with respect thereto. S-5! products are tested for ultimate holding strength on various profile types and materials. Visit **www.S-5.com** for more details. This document is an installation guide only and the photographs and drawings herein are for the purpose of illustrating installation, tools and techniques, not system designs. Information contained within is intended to apply to the document as a whole.

The S-5-U, S-5-S, S-5-E, S-5-B, and S-5-V clamps are made for standing seam profiles. For horizontal seam applications, the setscrew(s) must be accessible from the top for tightening. S-5-U clamps have two bolt holes to accommodate either vertical or horizontal seam applications; visit www.S-5.com for more details.

Tools Needed

- Screw Gun*
- T30 Torx Bit Tip (provided)
- Dial-Calibrated Torque Wrench
  (For accurate tension values, do NOT use a clicking torque wrench; inquire with S-5! for proper tool sourcing)

To Install the S-5-U, S-5-S, S-5-E, S-5-B, and S-5-V

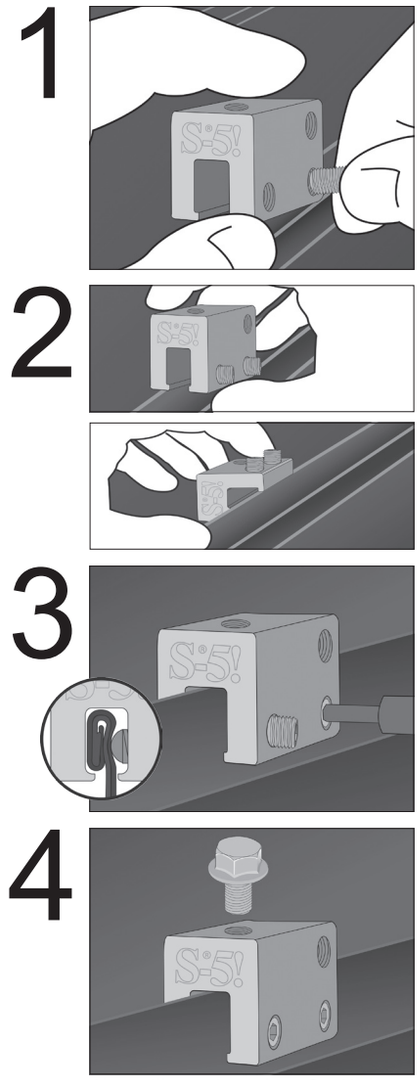
1. Partially thread the setscrews into the clamp by hand. (The S-5-U has four setscrew locations to make the clamp more versatile; however, only two setscrews are used per clamp. Both setscrews should always be loaded into the same side of the clamp.)
2. Determine how to position the clamp. When attaching to machine-folded seams (regardless of panel profile and geometry), S-5! clamps are designed to engage the seam as shown in Illustration A; with setscrew opposite seam fold. On many snap-together type seams, the setscrews are on the open (or overlap) side of the seam. On some seams, this aspect of clamp orientation is not critical.
3. Tighten the setscrews using a screw gun* and the included screw gun bit tip. Setscrews should be tensioned and re-tensioned as the seam material compresses, i.e. tighten the first setscrew, then the second; then repeat until each setscrew achieves the recommended torque. The setscrews will dimple the seam material but will not penetrate it. When relying on published load values, setscrew tension should be verified periodically using a calibrated torque wrench as indicated below to ensure the tool is consistently achieving the proper torque range. **Note:** See "Step 3 Note" at bottom of document on fitting S-5-U and S-5-V on certain vertical double-folds.

*** For time-saving tool recommendations, call S-5!**

Specified Torque	Inch Pounds	Foot Pounds	Nm
22ga steel	160–180	13–15	18–20
All other metals and thinner gauges of steel	130–150	11–12.5	15–17

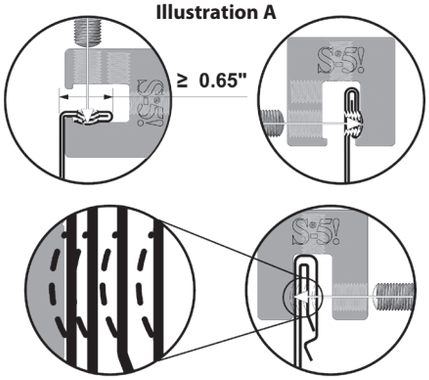
Once installed correctly, these clamps require no maintenance or re-inspection for the life of the roof.

4. For critical attachment applications utilizing an M8-1.25 X 16 mm Hex Flange Bolt, tighten the included M8 bolt to 160 inch pounds (13 foot pounds).



Above illustrations show S-5-U clamp on a vertical seam. Step 2 shows both vertical and horizontal applications.

Illustration A



(Top) S-5-U clamp on both vertical and horizontal seams. (Bottom) S-5-S on a snap together seam with blow up illustrating deformation of seam as setscrew is tightened

For horizontal seams equal to or greater than .65" use the S-5-U in its horizontal orientation.

For horizontal seams equal to or less than .50" use the S-5-S mounted vertically.

These instructions are for use by those experienced in the trade. Always follow appropriate safety precautions and use appropriate tools.

888-825-3432 | www.S-5.com S-5-U, S-5-S, S-5-E, S-5-B, S-5-V, & Mini Install

To Install the S-5-U Mini, S-5-S Mini, S-5-E Mini, S-5-B Mini, and S-5-V Mini

1. Partially thread the setscrew into the clamp by hand.

2. Determine how to position the clamp. When attaching to machine-folded seams (regardless of panel profile and geometry), S-5!® clamps are designed to engage the seam as shown in Illustration A on the front page; with setscrew opposite seam fold. On many snap-together type seams, the setscrew is on the open (or overlap) side of the seam. On some seams, this aspect of clamp orientation is not critical.

3. Tighten the setscrew using a screw gun* and the included screw gun bit tip. The setscrew will dimple the seam material but will not penetrate it. When relying on published load values, setscrew tension should be verified periodically using a calibrated torque wrench as indicated below to ensure the tool is consistently achieving the proper torque range. **Note:** See "Step 3 Note" at bottom of document on fitting S-5-U Mini and S-5-V Mini on certain vertical double-folds.

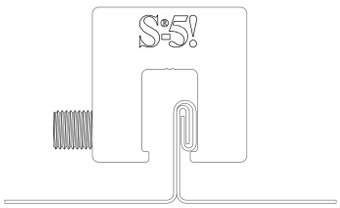
   ***For time-saving tool recommendations, call S-5!**

Specified Torque	Inch Pounds	Foot Pounds	Nm
22ga steel	160–180	13–15	18–20
All other metals and thinner gauges of steel	130–150	11–12.5	15–17

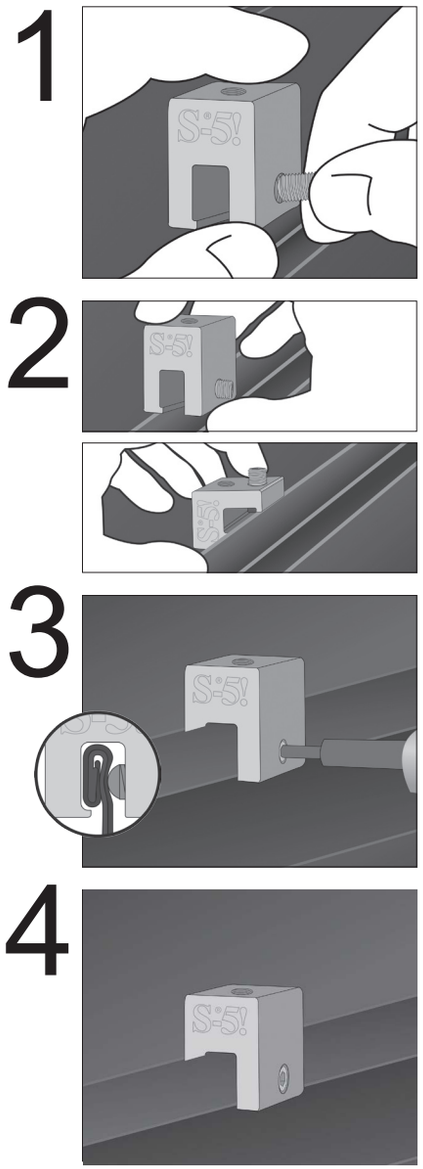
   Once installed correctly, these clamps require no maintenance or re-inspection for the life of the roof.

4. For critical attachment applications utilizing an M8-1.25 X 16 mm Hex Flange Bolt (sold separately), tighten the bolt to 160 inch pounds (13 foot pounds).

Step 3 Note: When installing S-5-U, S-5-V, S-5-U Mini, or S-5-V Mini on a vertical double fold, you may need to lift clamp in a manner that allows the lip of the clamp to engage the bottom of the seam and the setscrew(s) to fully engage the fold while tightening the setscrew(s). See clamp lip engagement in figure below. This will assist in making the clamp sit more vertically on the seam.



NOTE: Any S-5! warranty and/or calculation may be void if hardware is used that was not furnished by S-5! directly or through one of their licensed distributors



Above illustrations show S-5-E Mini clamp on a vertical seam. Step 2 shows S-5-E Mini on vertical applications and S-5-U Mini on horizontal applications.

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

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses, i.e. tighten the first setscrew, then the second; then repeat until each setscrew achieves the recommended torque. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

USEBVI-V1.2-0420

S-5!®

The Right Way!®

S-5-U Clamp

The S-5-U clamp is by far our most popular and most versatile clamp. It fits about 85% of the standing seam profiles manufactured in North America—including most structural and architectural profiles. It can be used on vertically oriented seams and, by rotating the clamp 90 degrees, it can also be used on most horizontal 2" seam profiles.

Its simple design, generous dimensioning, and multiple hole orientations are what make the S-5-U clamp so versatile for use with the S-5!® snow retention products, such as ColorGard®, as well as with other heavy-duty applications.

Installation is as simple as setting the specially patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

S-5-U Mini Clamp

The S-5-U Mini is a bit shorter than the S-5-U and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.

The S-5-U clamp is our most popular and versatile clamp, fitting about 85% of the standing seam profiles in North America.

The right way to attach almost anything to metal roofs!

S-5-U and S-5-U Mini

888-825-3432 | www.S-5.com | MADE IN THE USA

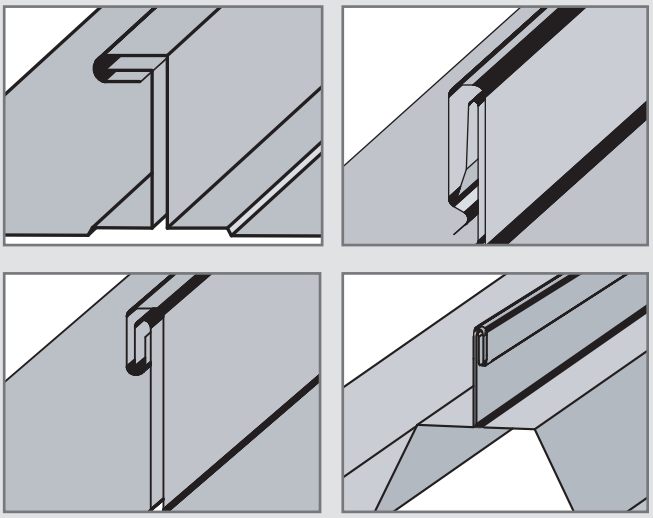
S-5!®
The Right Way!®

The strength of the S-5-U clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce it—leaving the roof manufacturer's warranty intact.

The **S-5-U and S-5-U Mini clamps** are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-U is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit **www.S-5.com** for more information including CAD details, metallurgical compatibilities and specifications.

The S-5-U clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry.

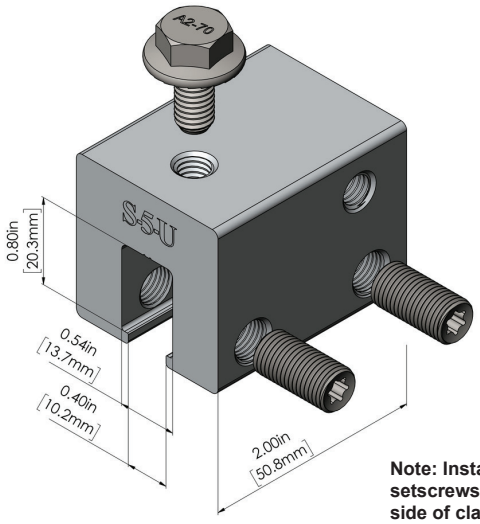
Example Profiles



For horizontal seams under 0.65", do not use this clamp. Visit www.S-5.com for more detailed information and proper clamp usage.

S-5-U Clamp

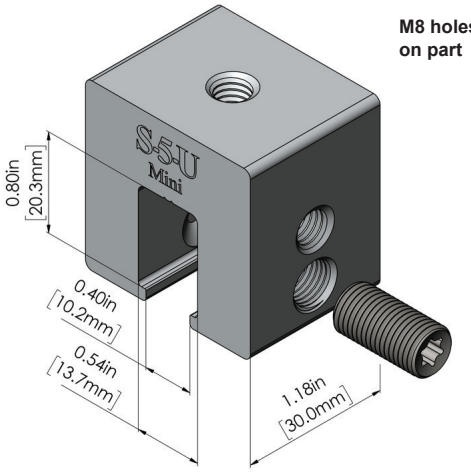
M8 hole located 1/2" (13.00 mm) from edge of part



Note: Install both setscrews on same side of clamp.

S-5-U Mini Clamp

M8 holes centered on part



Please note: All measurements are rounded to the second decimal place.

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

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

Distributed by

ZXM6-HLDD144 **Series**

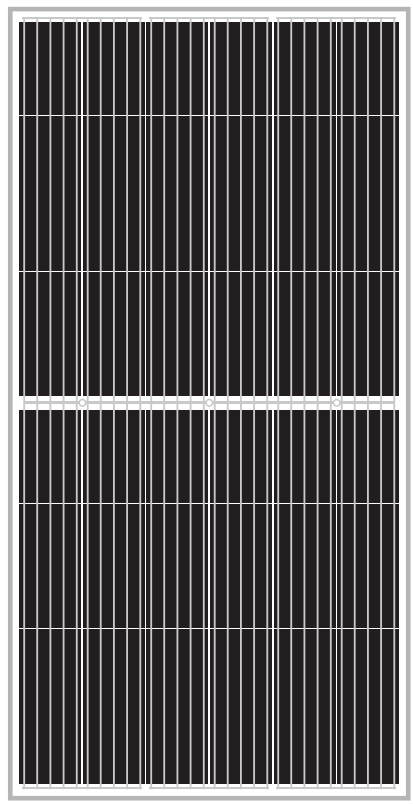
Znshinesolar 5BB **HALF-CELL** **Bifacial** Light-Weight Double Glass Mono PV Module

ZNSHINESOLAR

144

Mono Poly Solutions

385W | 390W | 395W | 400W | 405W | 410W

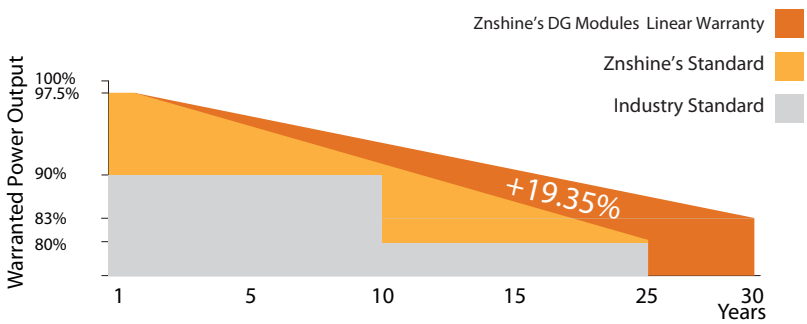


Made with selected materials and components to grant quality, duration, efficiency and through outputs, the ZXM6-HLDD144 double glass modules by ZNSHINE SOLAR feature have both decorative and shading functions.They represent the perfect choice for BIPV and BAPV construction applications. This allows you to produce clean energy whilst reducing your energy bill.

ZNSHINE SOLAR' S ZXM6-HLDD144 double glass solar modules are tested and approved by international acknowledged laboratories, so that we can offer our customers a reliable and price-quality optimized product.

12 years product warranty/30 years output warranty

0.5% Annual Degradation over 30 years



More power output

Module RS decreases, FF (fill factor) increases, power gain is stable above 2%, and can be increased by 5~10W

High Efficiency

Graphene coating can increase about 2W of the module efficiency by rising around 0.5% of the light transmission

Anti PID

Limited power degradation of ZXM6-HLDD144 module caused by PID effect is guaranteed under strict testing condition for mass production

Better Weak Illumination Response

Lower temperature coefficient and wide spectral response, higher power output, even under low-light settings

Bifacial technology

Enables additional energy harvesting from rear side(up to 25%)

Grahpene Coating

Graphene coating modules can increase power generation and self-cleaning, also can save maintainance cost

ZNShine PV-Tech Co., LTD, founded in 1988, is a world-leading high-performance PV module manufacturer, PV power station developer, EPC and power station operator. With its state-of-the-art production lines, the company boasts module output of 5GW. Bloomberg has listed ZNShine as a global Tier 1 PV manufacturer and Top 4 reliable PV supplier.

www.znshinesolar.com

ZXM6-HLDD144 **Series**

Znshinesolar 5BB **HALF-CELL** **Bifacial** Light-Weight Double Glass Mono PV Module

ZNSHINESOLAR

ELECTRICAL PROPERTIES | STC*

Module Type	ZXM6-HLDD144 -385/M	ZXM6-HLDD144 -390/M	ZXM6-HLDD144 -395/M	ZXM6-HLDD144 -400/M	ZXM6-HLDD144 -405/M	ZXM6-HLDD144 -410/M
Nominal Power Watt Pmax(W)	385	390	395	400	405	410
Power Output Tolerance Pmax(%)	0~+3	0~+3	0~+3	0~+3	0~+3	0~+3
Maximum Power Voltage Vmp(V)	40.3	40.5	40.7	40.9	41.1	41.3
Maximum Power Current Imp(A)	9.56	9.63	9.71	9.78	9.86	9.93
Open Circuit Voltage Voc(V)	48.4	48.6	48.8	49.0	49.2	49.4
Short Circuit Current Isc(A)	10.08	10.16	10.24	10.32	10.40	10.49
Module Efficiency (%)	19.01	19.26	19.51	19.75	20.00	20.25

*STC (Standard Test Condition): Irradiance 1000W/m², Module Temperature 25℃, AM 1.5
*The data above is for reference only and the actual data is in accordance with the pratical testing

ELECTRICAL PROPETIES | NMOT*

Maximum Power Pmax(Wp)	282.3	285.7	289.6	293.1	297.5	301.0
Maximum Power Voltage Vmpp(V)	37.2	37.3	37.5	37.7	38.0	38.2
Maximum Power Current Impp(A)	7.60	7.66	7.72	7.78	7.83	7.88
Open Circuit Voltage Voc(V)	44.7	44.9	45.1	45.3	45.6	45.8
Short Circuit Current Isc(A)	8.14	8.21	8.27	8.34	8.40	8.47

*NMOT(Nominal module operating temperature):Irradiance 800W/m²,Ambient Temperature 20℃,AM 1.5,Wind Speed 1m/s
*The data above is for reference only and the actual data is in accordance with the pratical testing

Electrical characteristics with 25% rear side power gain

Front power Pmax/W	385	390	395	400	405	410
Total power Pmax/W	481	488	494	500	506	513
Vmp/V(Total)	40.4	40.6	40.8	41.0	41.2	41.4
Imp/A(Total)	11.91	12.02	12.11	12.20	12.29	12.40
Voc/V(Total)	48.5	48.7	48.9	49.1	49.3	49.5
Isc/A(Total)	12.43	12.55	12.65	12.75	12.85	12.97

TEMPERATURE RATINGS

NMOT	45℃ ±2℃
Temperature coefficient of Pmax	-0.36%/℃
Temperature coefficient of Voc	-0.29%/℃
Temperature coefficient of Isc	0.05%/℃
Refer.Bifacial Factor	70±5%

*Do not connect Fuse in Combiner Box with two or more strings in parallel connection

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40℃~+85℃
Maximum series fuse	20 A
Maximum load(snow/wind)	5400 Pa / 2400 Pa

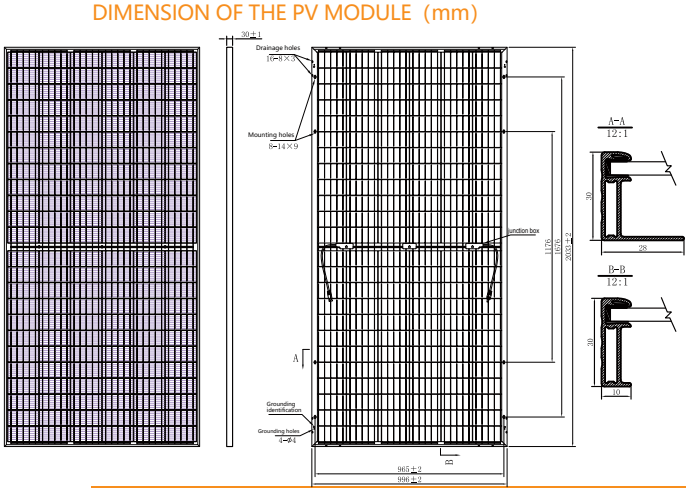
MECHANICAL DATA

Solar cells	Mono 158.75*79.375mm
Cells orientation	144 (6×24)
Module dimension	2033×996×30 mm(With Frame)
Weight	26 kg
Glass	2.0mm+2.0mm heat strengthened glass
Junction box	IP 68, 3 diodes
Cables	4 mm² ,350 mm
Connectors	MC4-compatible

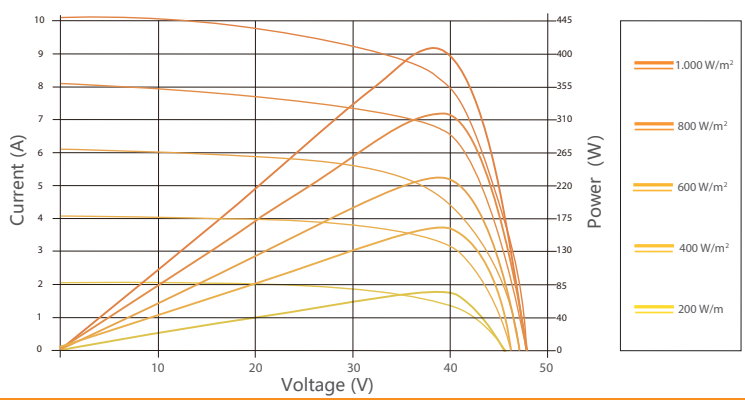
PACKAGING INFORMATION

Packing Type	40' HQ
Piece/Box	36
Piece/Container	792

DIMENSION OF THE PV MODULE (mm)



I-V CURVES OF THE PV MODULE



Add : 1#, Zhixi Industrial Zone, JintanJiangsu 213251, P.R. China
Tel: +86 519 6822 0233 E-mail: info@znshinesolar.com

INVERTERS

Single Phase Inverter with HD-Wave Technology

for North America

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

12-25 YEAR WARRANTY

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 the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 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

/ Single Phase Inverter with HD-Wave Technology

for North America

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	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[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	1, 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

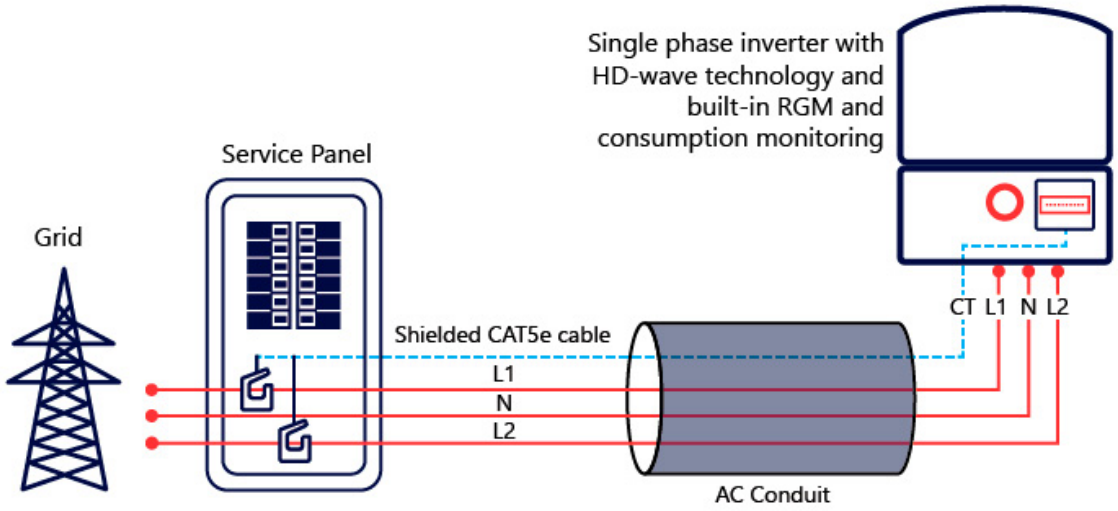
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional[3]							
Consumption metering								
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection							
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 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	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 (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) Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4 . For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

(4) Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

How to Enable Consumption Monitoring

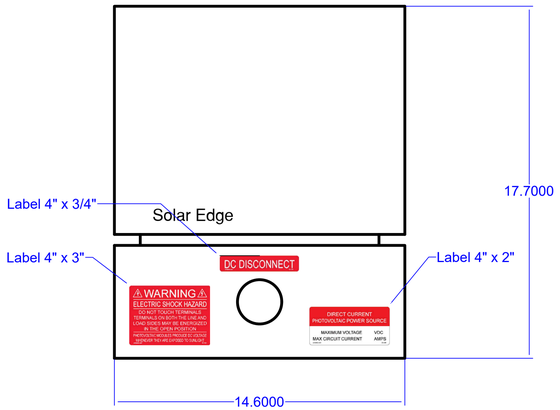
By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



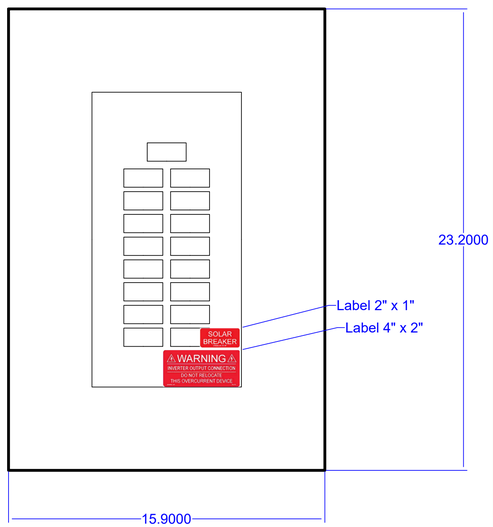
RoHS

Solar Edge SE3000H-US inverter w/ DC Shutoff
Max output Power = 3 kW
Max output current = 12.5 A

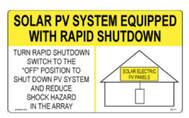
HxWxD = 17.7x14.6x6.8"



Main Breaker Open
(HxWxD) 23.2 x 15.9 x 4.4"



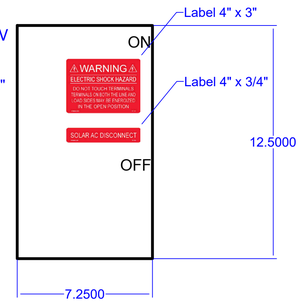
Located near Rapid Shutdown Switch

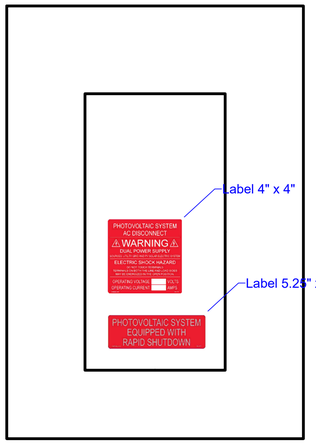


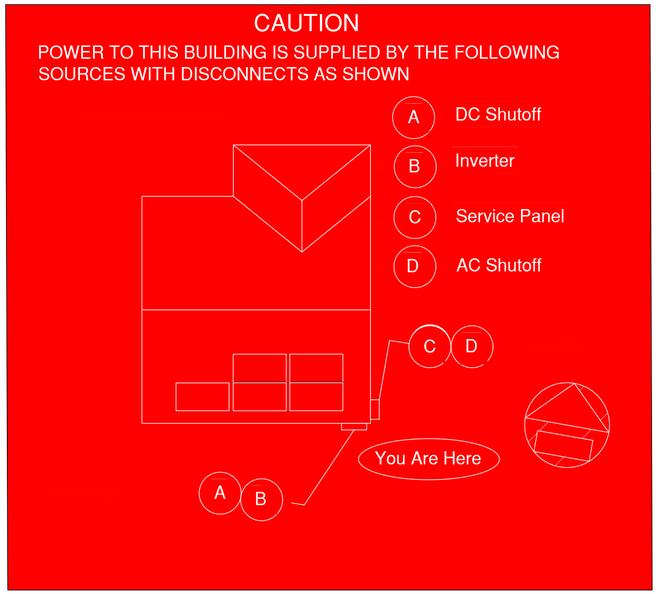
Conduit
Diamter $\frac{3}{4}$"

Eaton Dg221Nrb
AC Shutoff
Operating Voltage: 120/240V
Current Rating: 30A

HxWxD = 12.5 x 7.25 x 6.5"







PLACARD LOCATED ON DOOR OF MAIN SERVICE PANEL PER 705.10

Total Array Voc = 247V
Array Isc = 10.49 A

(5x) Zinshine ZXM6-HLDD144-410/M (410W) module
Power: 410W
Voc: 49.4V
Isc: 10.49 A

Auxillary Gnd, #10AWG
copper wire

DC Line
(1x) #10 AWG copper wire + Red
(1x) #10 AWG copper wire - Black
(1x) #10 AWG Equipment Ground
$\frac{3}{4}$" EMT conduit 10ft

1 2 3 4 5

\- + - + - + - + - +

\- +

G

Inverter integrated DC
Shutoff

AC Line
(1x) #10 AWG copper wire + White
(1x) #10 AWG copper wire - Black
(1x) #10 AWG copper wire - Green
(1x) #6 AWG copper wire Auxiliary Gnd
$\frac{3}{4}$" conduit 10ft max, combined length.

SE3000H-US inverter
Max output Power = 3 kW
Max output current = 12.5 A
Automatic rapid shutdown upon AC
Grid disconnect

L1 L2 N G

120% Rule Calculations	
Inverter Max Output = 12.5A	12.5A
Main Breaker	200A
Busbar Rating	200A
Max Allowable Solar Backfeed Amperage	40A
(Busbar Rating * 1.25) - Main Breaker	
Solar Backfeed Amperage	15.63 A
Inverter Max Output * 1.25	
Solar Backfeed Amperage should be less than 40A	

Service Panel with 30 Amp backfeed
breaker for PV System

200A Main
Breaker

30 A

N
G

L1 L2 N G

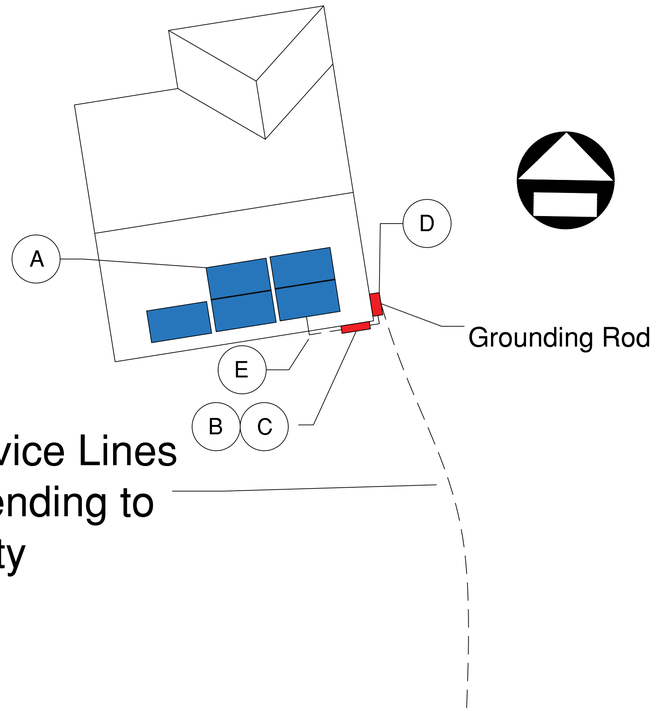
AC Shutoff 20-30A

Auxillary Gnd, #6AWG
copper wire

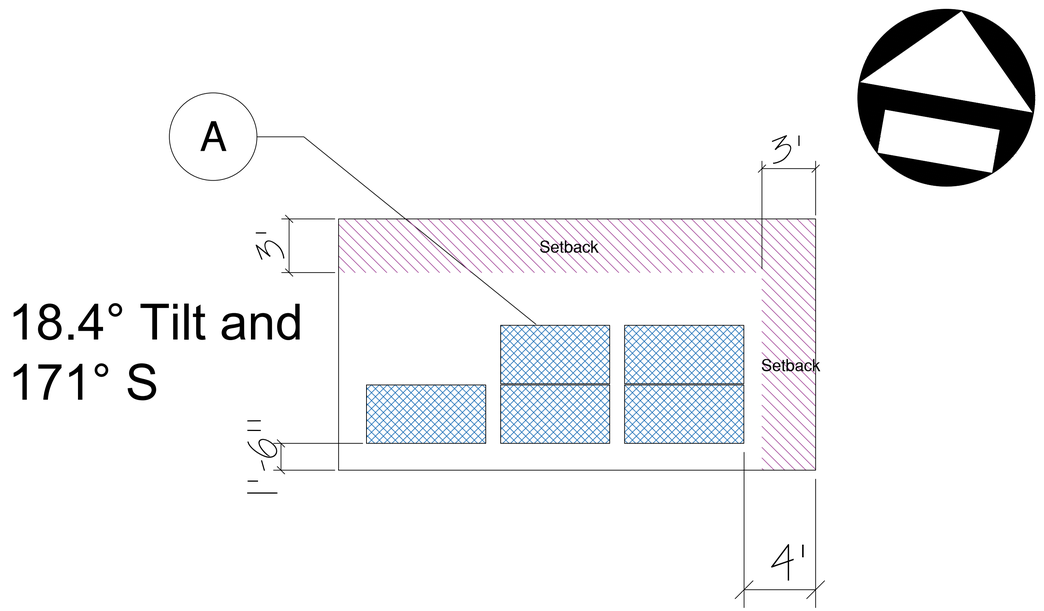
Meter

CEG
GND

Service conductors
extending to Utility



Site Plan, Not To Scale



Array Layout, South Roof Face-on, scale 1" = 4'

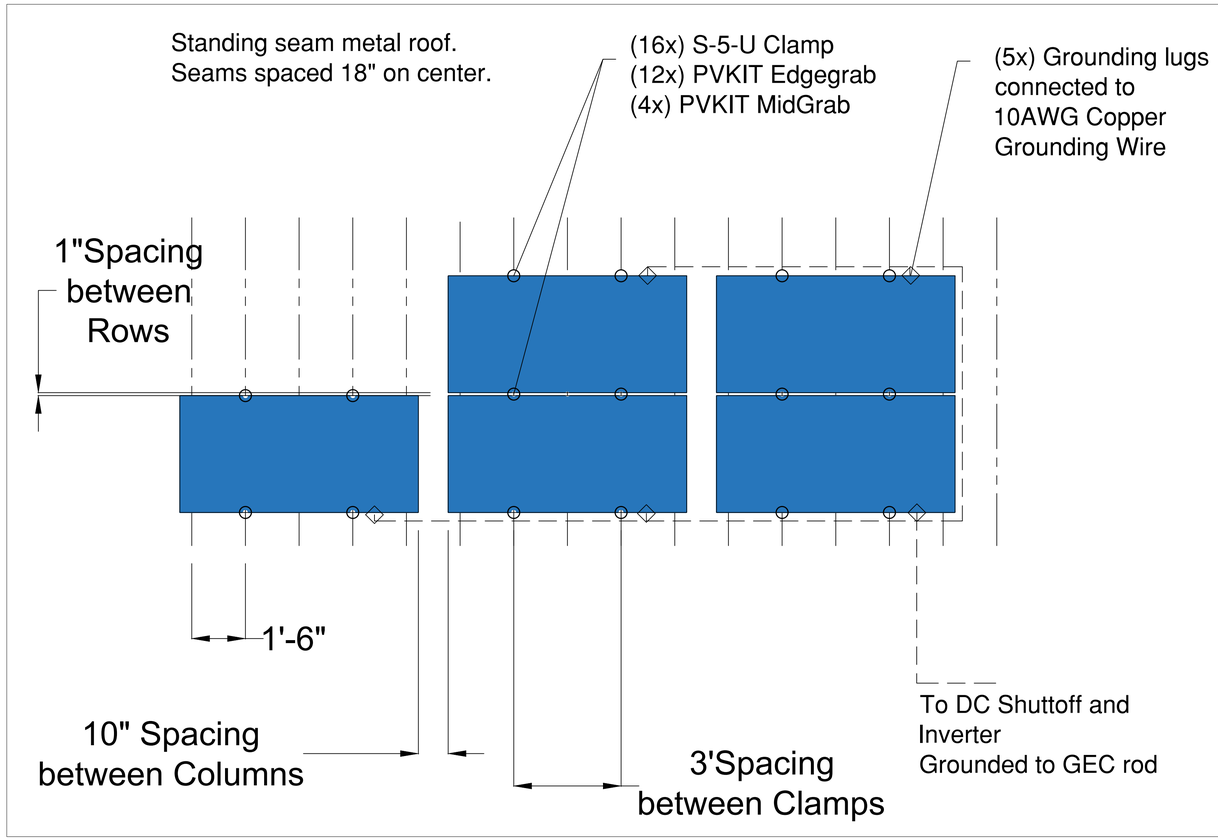
Plan Description
1. The installation consists of (5) 410 watt solar photovoltaic modules, roof mounted Total Size: 2.05 kW DC. 2. The system will be interconnected and will be operated in parallel with the utility electrical grid.

Equipment Locations	
A	Solar Array
B	DC Shutoff
C	Inverter
D	Main Service Panel
E	$\frac{3}{4}$" EMT Conduit

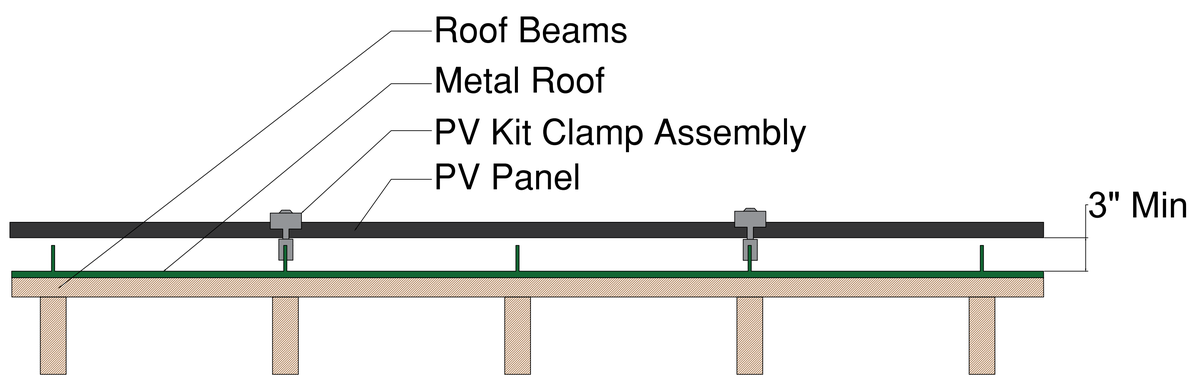
Roof Calculations	
Installation Area	109 SqFt
Total Roof Area	742 SqFt
% Roof Coverage	14.60%
# of Modules	5
Module weight	57.3 Lbs
Module Area	21.8 SqFt
Unit weight of Array	2.62 PSF
Max Module Wind Load	0.34 PSI

General Notes
1) THIS PROJECT SHALL CONFORM TO THE 2019 EDITIONS OF CALIFORNIA BUILDING, ELECTRICAL, MECHANICAL, PLUMBING , FIRE, ENERGY AND LOCAL AHJ CODE(S). 2) PHOTOVOLTAIC SYSTEM MEETS FIRE CLASSIFICATION PER CBC 1509.7 AND 1509.9 CLASS A . PV SYSTEM AND ASSOCIATED RACKING SYSTEM ARE TESTED AND IDENTIFIED WITH FIRE CLASSIFICATION IN ACCORDANCE WITH UL 1703, INVERTERS UL 1741 (PHOTOVOLTAIC MODULE ARE TO BE CONSIDERED NON-COMBUSTIBLE) 4) LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION 5) SMOKE ALARMS & CARBON MONOXIDE DETECTORS TO BE INSTALLED PER AUTHORITY HAVING JURISDICTION S REQUEST IN ALL REQUIRED LOCATIONS (OUTSIDE EACH SEPARATE SLEEPING AREA, IN EACH ROOM FOR SLEEPING PURPOSES, IN EACH STORY, INCLUDING BASEMENT) 9) THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS INCLUDING SKYLIGHTS. 10) A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS. 11) MAIN PANEL IS NOT BEING DERATED 12) THE SYSTEM MUST BE DISABLED TO ALLOW SAFE ACCESS TO THE PHOTOVOLTAIC SYSTEM

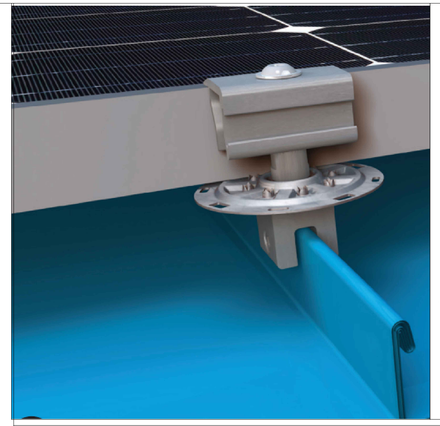
Electrical Notes
1)ALL EXPOSED ROOF WIRING SHALL BE TWHN-2 WIRE TYPE RATED FOR (90°C) WET CONDITIONS. OTHER OUTDOOR WIRING SHALL BE COPPER TWHN-2 RATED FOR (90°C) APPLICATIONS IN EMT CONDUIT 2) ALL DC WIRING WILL BE: DC UNGROUNDED CONDUCTOR=BLACK, DC GROUNDED CONDUCTOR=WHITE OR OTHER APPROVED OPPOSING COLORS. 4) #10AWG SOLID BARE COPPER GROUND WILL BE USED AS AN EQUIPMENT GROUND TO CONNECT THE PV RACKING STRUCTURE WHEN NOT EXPOSED TO DAMAGE. IF EXPOSED TO DAMAGE, #6AWG WILL BE USED. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #10AWG AND NO GREATER THAN #6AWG COPPER AND BONDED TO THE GROUND ROD OF THE MAIN SERVICE PANEL 5) ALL DISCONNECT SWITCHES SHALL BE WIRED SUCH THAT THE LINE SIDE WILL HAVE LIVE CONDUCTORS WHEN THE SWITCH IS IN THE OPEN POSITION 5) MARKING OF THE PV SYSTEM DISCONNECT SHALL BE ACCORDANCE WITH NEC 690.17. MARKING OF THE DC PV POWER SOURCE SHALL BE IN ACCORDANCE WITH NEC 690.53. MARKING OF THE INTERACTIVE SYSTEM POINT OF CONNECTION SHALL BE IN ACCORDANCE WITH NEC 690.54 6) ALL EXTERIOR CONDUIT, FITTINGS, AND JUNCTION BOXES SHALL BE RAIN TIGHT AND APPROVED FOR USE IN A WET LOCATION 7) EACH MODULE WILL BE GROUNDED USING THE SUPPLIED CONNECTIONS POINTS IDENTIFIED ON THE MODULE AND THE MANUFACTURER S INSTALLATION INSTRUCTIONS. 8) EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT, AND CONDUCTOR ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH 250.134 OR 250.136 (A) REGARDLESS OF VOLTAGE 9) PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE MAINTAINED. 10) NO SHEET METAL OR TECH SCREWS SHALL BE USED TO GROUND DISCONNECT ENCLOSURE WITH TIN-PLATED ALUMINUM LUGS, PROPER GROUNDING/GROUND BAR KITS WILL BE USED 11) FERROUS METAL RACEWAYS ENCLOSING GEC CONDUCTORS SHALL BE ELECTRICALLY CONTINUOUS OR BONDED IN ACCORDANCE WITH ART 250.64E 12) ALL MODULES AND RACKING GROUNDING LUGS SHALL BE UL 467 APPROVED (ILSCO GBL-4DBT) 13) THIS SYSTEM IS AN UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES. 14)CONTROLLED CONDUCTORS LOCATED OUTSIDE THE BOUNDARY OR MORE THAN 1M (3FT) FROM THE POINT OF ENTRY INSIDE A BUILDING SHALL BE LIMITED TO NOT MORE THAN 30 VOLTS WITHIN 30 SECONDS OF RAPID SHUTDOWN INITIATION PER CEC 690.12(B)(1)

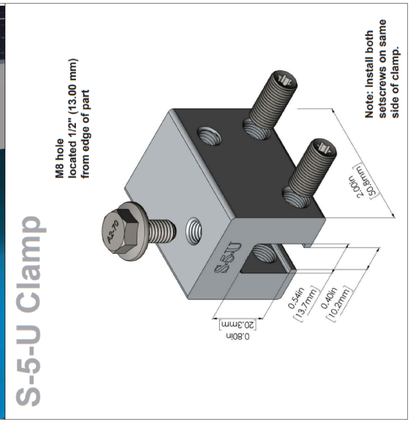


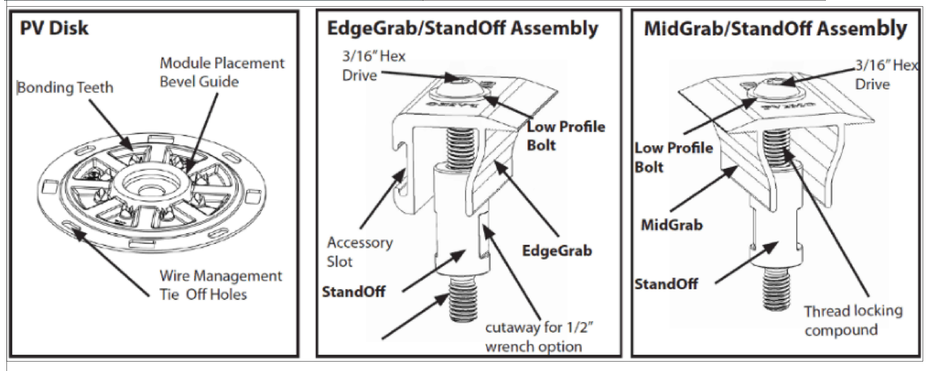
Clamp and Ground Locations, scale 1" = 2'



Profile View, Typical of one module, Not to scale







Solar Module Specifications	
Manufacturer	Znshine
Model Number	ZXM6-HLDD144-410/M
Pmax	410 W
Vmp	41.3 V
Imp	9.93 A
Voc	49.4 V
Isc	10.49 A
Module Dimension	(2033×996×30 mm) [80×39.2×1.2 in]

Inverter Specifications	
Manufacturer	Solar Edge
Model Number	SE3000H-US
Max Output Power	3000 W
Max Output Current	12.5 A
Max Output Voltage	264 V

Percent of Values	Number of Current Carrying Conductors
.80	4-6
.70	7-9
.50	10-20

DC Conductor Ampacity Calculations - Array to Inverter	
Expected Wire Temp. (F)	72 F
Height of conduit from roof	$\frac{3}{4}$"
Adjusted Wire Temperature	112F
Temp Correction Per Table 310.16	0.87
No. of current carrying conductors	3
Conductor Bundling Correction per 310.15(B)(3)(a)	1.0
Circuit Conductor Size	#10 AWG
Circuit Conductor Ampacity	30 A
Required Circuit Conductor Ampacity Per NEC 690.8(A&B)	16.39 A
1.25 * 1.25 * Isc	
Derated Ampacity of Curcuit Conductor Per NEC Table 310.16	26.1 A
Temp Correction * Conduit Bundling Correction * Circuit Conductor Ampacity	
Result of Derated Ampacity should be greater than 16.39A	

AC Conductor Ampacity Calculations -Inverter to Service Panel	
Expected Wire Temp. (F)	72 F
Height of conduit from roof	N/A - not on roof
Adjusted Wire Temperature	N/A
Temp Correction Per Table 310.16	1.0
No. of current carrying conductors	4
Conductor Bundling Correction per 310.15(B)(3)(a)	.80
Circuit Conductor Size	#10 AWG
Circuit Conductor Ampacity	30 A
Required Circuit Conductor Ampacity Per NEC 690.8(B)	15.63 A
1.25 * Inverter Max Output Current	
Derated Ampacity of Curcuit Conductor Per NEC Table 310.16	24A
Temp Correction * Conduit Bundling Correction * Circuit Conductor Ampacity	
Result of Derated Ampacity should be greater than 15.63A	

COUNTY OF SAN BENITO
RESOURCE MANAGEMENT AGENCY
PLANNING AND BUILDING INSPECTION SERVICES

2301 Technology Parkway
Hollister, CA 95023-2513

Phone: (831) 637-5313
E-mail: *sbcplan@cosb.us*

PHOTOVOLTAIC REQUIREMENTS

In order to process and expedite your request for a building permit, please submit the items listed below and include this completed checklist in your submittal. Incomplete submittals will not be accepted. We do not accept submittals by mail or courier. A plan check fee will be required at submittal if ground mounted. The permit may only be issued to the property owner or a properly licensed contractor. Provide complete, stapled (down the left side) sets of drawings, 11"x17" minimum size -maximum size 30"x42", shall include the following: (please remember a C-10 or C-46 classification contractor's license may pull permits for photovoltaic installation):

1. General – Submittal Requirements

- ☑ Wet signature on all documents by design professional including designers(s).
- ☑ Name, title, registration number, address, email and telephone number of applicable design professional(s) or print name with phone number if not licensed.
- ☑ Cover sheet shall include: list the 2019 California Building Code, 2019 California Electrical Code, 2019 California Residential Code and 2019 Fire Code.
- ☑ If you are derating the main panel, you must submit two sets of load calculations for the entire house.
- ☑ Conductor sizing calculations per CEC – Article 690.8.
- ☑ PV back-feed breaker & calculations (120% rule) or for "Solar Ready" panels provide specifications and listings also include in line diagram per CEC – Article 705.12 (B)(2)(3)(b).

2. Roof Top Installation (3 sets of plans)

- ☑ General information: Size of system being installed.
- ☑ Floor plan, drawn to scale showing room locations and emergency escape locations per CRC-R324.6.2.2 (For one story houses please note: R324.6.2.2 N/A).
- ☑ Roof plan, drawn to scale, with the following information: North arrow; direction to street frontage main electric meter and panel, DC disconnect, inverter, AC disconnect; roof slope, materials of roof covering, roof dimension, location of array(s). Include rafter spans and intermediate bracing (purlins).
- ☑ Show rooftop setbacks per CRC – R324.6 through R324.6.2.2.
- ☑ Single line diagram of electrical equipment clearly showing: size of main panel, sub panels, rapid shut down, PV system equipment including make, model and size of units, disconnects and wire size and type.
- ☑ Show actual proposed labels and placards including site plan placard as required by code and policy. Note where to be located with approximate dimension of the label (Include rapid shut down).
- ☑ Note the rapid shut down controlled limits for inside and outside the array boundary per CEC – Article 690.12 (B).
- ☑ Equipment type, listing, testing agency approvals, etc. on all equipment per CEC – Article 690.4 (B).

3. Ground Installation (4 sets of plans)

- ☑ General information: Size of system being installed
- ☑ Planning approval, location on site plan.
- ☑ Site plan shall show all existing and proposed utilities (water service, sewage disposal system, gas, electric, telephone, cable, TV service lines and transformers etc.).
- ☑ Footing and attachment details (width, depth…) with engineering calculations.
- ☑ Line drawing of conduit size and location of conduit connecting arrays and service panel.
- ☑ Show actual proposed labels and placards including site plan placard as required by code and policy. Note where to be located with approximate dimension of the label.
- ☑ Clear brush free area of 10 feet required per CRC – R324.7.2.6.
- ☑ Equipment type, listing, testing agency approvals, etc. on all equipment per CEC – Article 690.4 (B).

4. Photovoltaic Disconnect Requirements

- ☑ Provide a system to allow safe installation of servicing of portions of the PV array or the entire array per CEC – Article 690.15.
- ☑ Note and provide the system must be "disabled" to allow safe access to the photovoltaic system.

QUICK CHECK

- ☑ Roof plan to scale including setbacks.
- ☑ Arrow indicating North, Wind Load, Grounding Location
- ☑ Roof type, slope, size, span of rafters
- ☑ Roof cross section, truss design and or mid span supports
- ☑ Calculations-derating main service(if applicable), conductor, conduit and back-feed breaker(120% rule)
- ☑ Size & Location of electrical service. Note: new or existing main service
- ☑ Single line diagram of all electrical equipment, breakers, conductors and conduit sizes
- ☑ Actual proposed labels and placards including site plan placard as required. Note location
- ☑ Equipment manufacturer's specifications showing equipment type, listing and testing agencies per CEC – Article 690.4 (B).

* Please be aware Smoke and Carbon Monoxide Alarm Retrofit Verification will be required at Final Inspection per CRC Section R315 and CBC 907.2.10.5.2
I have read the above information and have submitted all the required information.

Address: 0 Pine Tree Avenue Permit # BLD22-00292

Signature: [signature] Date: 12/4/2022

Revised 01/28/20

Panasonic

Intelli-Balance™ 100 Energy Recovery Ventilator

Intelli-Balance 100™

FV-10VEC2 (Cold Climate)
FV-10VE2 (Temperate Climate)

HEALTHY AIR, HEALTHY HOME
HVI-certified True Flow ratings at **0.4"** static pressure provide powerful CFM output to assure code compliant, healthy homes[1]
(See PQ Curves)

- **New!** Occupant controllable Boost function. Moves fan speed to high when activated.
- Designed for multi-family dwellings and new air tight homes built to meet energy efficiency standards
- Engineered for use in any North America Climate Zone
- Two (2) powerful ECM motors with Smart Flow™ technology ensure optimum airflow by overcoming static pressure to effectively remove contaminated and replace it with fresh air
- Multi-speed selector (50 to 100 CFM) provides customizable airflow to create balanced, positive or negative pressure for supply and exhaust motor within the residential and commercial spaces
- Highest energy recovery efficiency performer in the 150 CFM and under ERV class
- Core material permeated with anti-mold treatment to help prevent mold
- Exclusive built-in ASHRAE 62.2 timing function helps ensure code compliance and simplifies the installation process
- MERV 8 filter included; MERV 8 and optional MERV 13 replacements available
- Connect to existing ductwork or use as a standalone, whole-house ventilation solution
- Can be used to meet Green Building Code requirements and contribute to better HERS/ERI scores

ADDITIONAL BENEFITS

- High efficiency exchange capillary core recovers heat and balances moisture, inside to outside
- Two mounting options - wall or ceiling
- Separate control of supply and exhaust airflow. Four integrated dual 4" or 6" duct adapters (2 exhaust, 2 supply)
- Includes static pressure access ports with balancing instructions on the ERV for simplified installation
- Model FV-10VEC2 meets Ontario, ENERGY STAR®[2] and Novoclimat requirements[3]
- 6 Year Warranty on ECM motor, 3 Years on all other parts

[1] Highest CFM rating for supply and exhaust at 0.4 static pressure
[2] Meets strict energy efficiency guidelines set by Natural Resources Canada and is ENERGY STAR® certified for the Canadian market only
[3] Meets established energy efficiency standards in Canada for climate Zone 1 - fewer than 6,000 heating degree days (HDD)

reinventingventing.com

ENERGY STAR

PRECISION VENTILATION

The power of performance, with exclusive smart sensing technology

Intelli-Balance™ 100

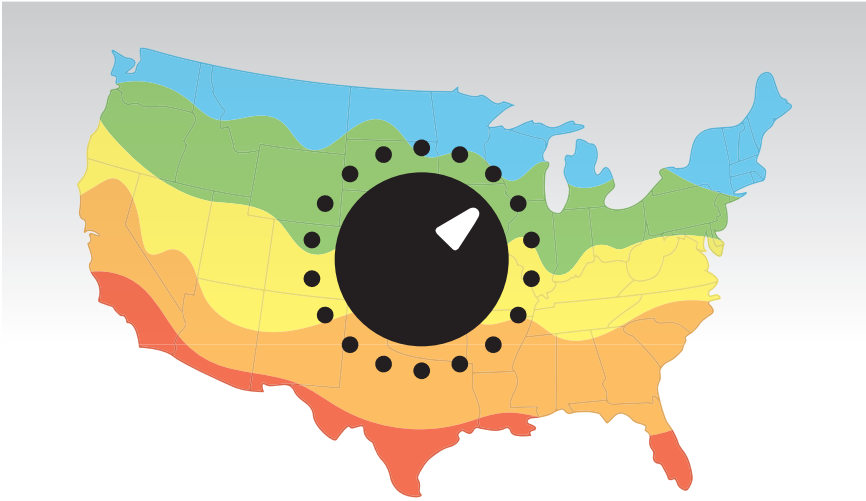
FV-10VEC2[2] (Cold Climate)
FV-10VE2 (Temperate Climate)

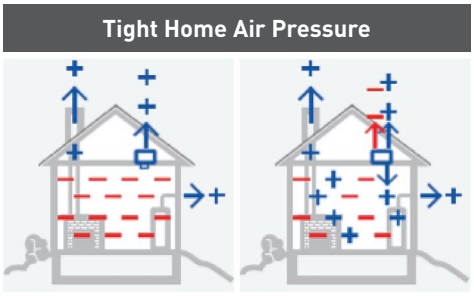
ENERGY STAR

[2]Meets strict energy efficiency guidelines set by Natural Resources Canada and is ENERGY STAR® certified for the Canadian market only.

COST EFFECTIVE, CODE COMPLIANT ERV FOR ANY CLIMATE ZONE

Intelli-Balance™ 100 is a powerful, high performance, high efficiency Energy Recovery Ventilator (ERV) that's designed to help you meet ASHRAE 62.2 requirements. This unique and cost effective ERV was engineered for total versatility and installation flexibility, in any climate zone. Built-in controls minimize the time it takes to determine desired airflow, as well as verify and maintain performance. Intelli-Balance™ 100 allows you to simply design and specify your ventilation system requirements, improve IAQ and reduce ventilation costs.





BALANCED VENTILATION

Tightly built homes and buildings utilizing exhaust only fans can create negative pressure. Intelli-Balance™ 100 solves this by supplying air to replace exhausted air, helping to balance air pressure within the home.

Panasonic Intelli-Balance™ 100 ERV uses four integrated dual 4" or 6" round duct adaptors – two adaptors to exhaust stale air and two other adaptors to supply fresh air. Panasonic Intelli-Balance™ 100 ERV's low, continuous run helps remove moist, stale air and replace it with fresh air. Air changes per hour have been shown to reduce virus and bacteria counts in the air balance ventilation.

Intelli-Balance™ 100 can be ceiling or wall mounted, does not require connection to the Central HVAC or the addition of a condensation line. This allows it to be installed in many places throughout the home to meet IAQ, health and comfort needs.

PRECISION VENTILATION

SMART FLOW™ ECM TECHNOLOGY

ECM MOTOR TECHNOLOGY

Intelli-Balance™ 100 uses two (2) ECM brushless motors with built-in SmartFlow™ technology for precision ventilation. When the ERV senses static pressure, its speed is automatically increased to ensure optimal CFM output; regardless of a complicated duct run. This feature provides peace of mind, as the installer doesn't have to worry about compromising the ERV's performance. Both ECM motors are rated for continuous run and are totally enclosed to ensure long-life and continuous, quiet operation. Each motor is equipped with a thermal cutoff fuse.

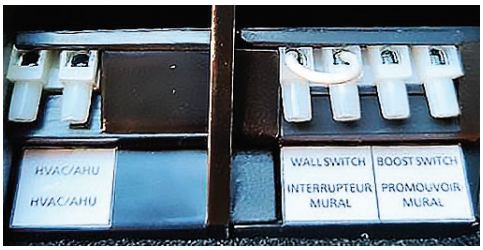
Built-In Controls

ASHRAE 62.2 Timer | Multi-Speed Supply | Multi-Speed Exhaust

MULTI-SPEED SELECTOR

Intelli-Balance™ 100 includes a built-in Multi-speed selector that provides the unique ability to select your required supply (50-60-70-80-90-100 CFM) and exhaust airflow (50-60-70-80-90-100 CFM), with the simple turn of a dial. This truly customizable airflow capability allows you to create balanced, positive or negative pressure within the home.

Key improvement features
Added a jumper cable at the wall switch terminal on the fan.

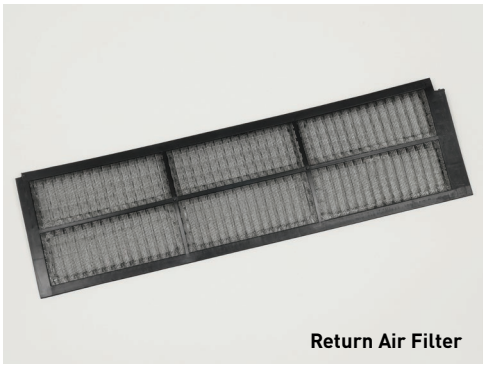


Accessories (Sold Separately):

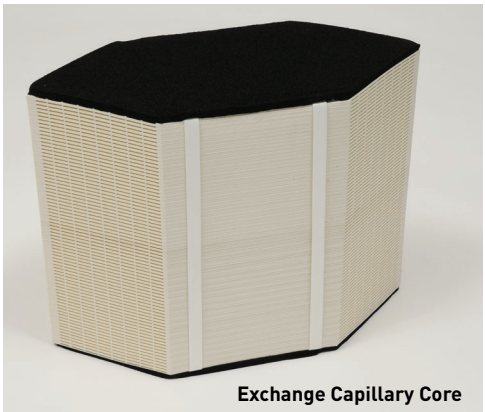
FV-FL0810VE1: Supply Air (SA) MERV 8 Replacement Filter

FV-FV1310VE1: MERV 13 Optional Replacement Filter

Supply Air Filter (SA) (MERV 8 included, MERV 13 Optional)



Return Air Filter



Exchange Capillary Core

ASHRAE 62.2 INTERMITENT TIMING FUNCTION

The adjustable Minutes Per Hour (Min/Hr) timer allows the user to set the number of minutes per hour the ERV should run. This gives scalability of air flow relative to property size; from the smallest multi-family to larger single family applications.This ensures consistent and controlled ventilation throughout the day for compliance with ASHRAE 62.2. Factory default setting is 60 Min/Hr.

FILTERS & MAINTENANCE

Intelli-Balance™ 100 has two filters that clean the exhaust and supply air before passing through the ERV core, extending the life of the core. A hinged access panel allows for quick and easy product maintenance and filter checks. Convenient light indicator and unobtrusive alarm signal on the access panel will help inform the homeowner when it's time to check and clean the filters. Both filters should be vacuumed with a soft brush attachment every 2-3 months or as needed, and the supply air filter should be inspected every 90 days and replaced every 6 months to maintain the ERV's peak performance.

EXCHANGE CAPILLARY CORE

Indoor and outdoor air pass through Panasonic's patented capillary core designed to transfer heat and moisture. This process tempers supply air while balancing moisture levels inside to outside. The core's high latent energy (moisture) transfer makes Intelli-Balance 100 ideal for use in most climate zones, as it helps expel moisture during incidences of high relative humidity (RH) and helps return moisture back inside during the winter for a healthier, more comfortable living environment. Core material permeated with anti-mold treatment to help prevent mold in the home.

WHOLE HOUSE ERV

Intelli-Balance™ 100 is a ceiling or wall mount Energy Recovery Ventilator (ERV) that's ideal for meeting whole house ventilation requirements under ASHRAE 62.2. Intelli-Balance™ 100 is also an ideal choice when partnered with mini-splits or VRF Heat Pumps for fresh, balanced air with energy recovery which makes it a very affordable, cost-effective IAQ solution.

Ideal for: Single Family Homes (≤ 3,000 sq. ft., up to 7 bedrooms) / Condominiums / Apartments / Housing Authority Properties / Hotels / Studio apartments.

ASHRAE 62.2 2010 AND 2013 STANDARD

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) set a standard for whole house ventilation, requiring that continuous mechanical ventilation be 7.5 CFM per bedroom (master bedroom X 2) plus 1 CFM per 100 square feet, with sones not to exceed 1.0. ASHRAE 62.2-2013 requires a ventilation rate of 7.5 CFM per person plus 3 CFM per 100 square feet. Please check with your local jurisdiction to determine which ventilation standard you should follow. Panasonic Intelli-Balance™ 100 ERV is an affordable, efficient way to meet the ASHRAE 62.2 standard.

OPERATION

FV-10VEC2 is recommended for areas where temperatures can drop as low as -22°F (-30°C). When the outdoor temperature is < -22°F (-30°C), the defrost cycle is initiated and the product will stop operating for 47 minutes, then operate in heat exchange mode for 4 minutes in order to sample the outdoor temperature. It then operates in circulation mode for 9 minutes in order to defrost (exhaust and supply air are 50 CFM). Defrost cycle overrides the ASHRAE 62.2 timing function.

FV-10VE2 is recommended for areas where temperatures can drop as low as 14°F (-10°C). When the outdoor temperature is < 14°F (-10°C), the defrost cycle is initiated and the product will stop operating for 56 mins, then operate in heat exchange mode for 4 minutes in order to sample the outdoor temperature (exhaust and supply air are 50 CFM). Defrost cycle overrides the ASHRAE 62.2 timing function.

INSTALLATION

Mounting: Intelli-Balance™ 100 can easily be mounted in the ceiling or on a wall using the included cleat hanger bar. It measures 23" wide and fits between joists 16" on center. Intelli-Balance™ 100 can also be chain mounted and suspended. Adjustable brackets and screws are provided to secure the unit to the joist on 4 corners.

Wiring: Power consumption is 81 Watts on both FV-10VEC2 and FV-10VE2, with a power rating of 120/60 V/Hz.

Duct: Insulated 4"or 6" duct is recommended.

Static Pressure Access Ports: The unit's access panel incorporates static pressure ports for measuring the differential pressure of fresh air and exhaust air so the dampers can be adjusted for balancing airflows.

Intelli-Balance Accessory Kits					
Model No.	Description	Inlet Grille	Backdraft Damper	Clamp	Y-Adapter
FV-NLF04G	4" Inlet Grille + Metal Plate	1 (4")	-	-	-
FV-NLF06G	6" Inlet Grille + Metal Plate	1 (6")	-	-	-
PC-NLF04S	4" Single Inlet Kit	1 (4")	1 (4")	6	-
PC-NLF06S	6" Single Inlet Kit	1 (6")	1 (6")	6	-
PC-NLF04D	4" Double Inlet Kit	2 (4")	2 (4")	12	1 (4"- 4" x 2)
PC-NLF06D	6" Double Inlet Kit	2 (6")	2 (6")	12	1 (6"- 6" x 2)
PC-NLF64D	6"- 4" Double Inlet Kit	2 (4")	2 (4")	12	1 (6"- 4" x 2)
PC-NLF86Y	8"- 6" Y-Adapter	-	-	-	1 (8"- 6" x 2)
FV-NLF46RES	Recessed Inlet integrated dual 4" or 6" duct adaptor	-	-	-	-
EZSV14	Soffit Termination System	-	-	-	-

Intelli-Balance 100	FV-10VEC2/FV-10VE2	
Characteristics	COLD/TEMPERATE CLIMATE	
Static pressure in inches w.g.	0.1	0.4
Net Exhaust Air Volume (CFM)	100	100
Net Supply Air Volume (CFM)	100	100
Power Consumption (Watts)	81	100
Power Rating (V/Hz)	120/60	
ENERGY STAR® Certified	YES	

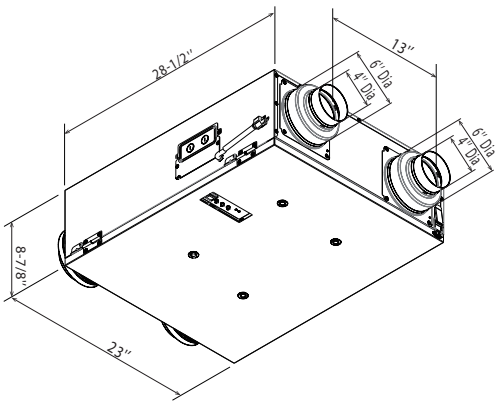
FV-10VEC2

Supply Temperature		Net Air Flow		Power Consumed (Watts)	Sensible Recovery Efficiency	Apparent Sensible Effectiveness	Net Moisture Transfer
°C	°F	L/S	CFM				
Heating							
0	32	25	53	29	81	84	81
0	32	31	66	39	77	81	75
0	32	40	85	68	75	80	74
-25	-13	27	57	77	64	67	73
-25	-13	30	64	100	56	60	64
Cooling					Total Recovery Efficiency		
35	95	23	49	32	60		

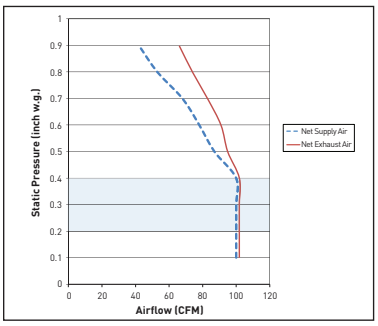
FV-10VE2

Supply Temperature		Net Air Flow		Power Consumed (Watts)	Sensible Recovery Efficiency	Apparent Sensible Effectiveness	Net Moisture Transfer
°C	°F	L/S	CFM				
Heating							
0	32	25	53	29	81	84	81
0	32	31	66	39	77	81	75
0	32	40	85	68	75	80	74
Cooling					Total Recovery Efficiency		
35	95	23	49	32	60		

FV-10VEC2/FV-10VE2



FV-10VEC2/FV-10VE2 50-80-100 CFM 4 x 4" or 6" Ducts



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