

HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Karen Burditt

Chair

Date: July 29, 2025

MEMORANDUM

TO: Rabbiah Sabbakhan

Department of Permitting Services

FROM: Devon Murtha

Historic Preservation Section

Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit #1125998 – Solar Panel Installation

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** by HPC staff.

The HPC staff has reviewed and stamped the attached submission materials.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Vincent Verweij (owner), Tina Crouse (agent) Address: 68 Walnut Avenue, Takoma Park, MD 20912

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete, the applicant will contact Devon Murtha at 301-495-1328 or devon.murtha@montgomeryplanning.org to schedule a follow-up site visit.





HAWP #:	at:	, Takoma Park
 submitted on:_		
has been reviev	ved and determi	ned that the proposal fits into the following category/categories:

Repair or replacement of a masonry foundation with new masonry materials that closely match the original in appearance;

Installation of vents or venting pipes in locations not visible from the public right-of-way;

New gutters and downspouts;

Removal of vinyl, aluminum, asbestos, or other artificial siding when the original siding is to be repaired and/or replaced in kind;

Removal of accessory buildings that are not original to the site or non-historic construction;

Repair or replacement of missing or deteriorated architectural details such as trim or other millwork, stairs or stoops, porch decking or ceilings, columns, railings, balusters, brackets shutters, etc., with new materials that match the old in design, texture, visual characteristics, and, where possible materials, so long as the applicant is able to provide one extant example, photographic evidence, or physical evidence that serves as the basis for the work proposed;

Construction of wooden decks that are at the rear of a structure and are not visible from a public right-of-way;

Roof replacement with -compatible roofing materials, or with architectural shingles replacing 3-Tab asphalt shingles;

Installation of storm windows or doors that are compatible with the historic resource or district;

Repair, replacement or installation of foundation-level doors, windows, window wells, and areaways, or foundation vents, venting pipes, or exterior grills that do not alter the character-defining features and/or the historic character of the resource:

Construction of fences that are compatible with the historic site or district in material, height, location, and design; Fence is lower than 48" in front of rear wall plane;

Construction of walkways, parking pads, patios, driveways, or other paved areas that are not visible from a public right-of-way and measure no more than 150 square feet in size;

Replacement of existing walkways, parking pads, patios, driveways, or other paved areas with materials that are compatible with the visual character of the historic site and district and that are no greater than the dimensions of the existing hardscape;

Construction of small accessory buildings no larger than 250 square feet in size that are not visible from the public right-of-way;

Installations of skylights on the rear of a structure that will not be visible from the public right-of-way, and would not remove or alter character-defining roof materials;

Installation of solar panels and arrays in locations that are not readily visible from the public right-of-way or that are designed so as to have a minimal impact on the historic resource or the historic district (e.g., systems that are ground-mounted in areas other than the front or side yard of a corner lot, located on accessory or outbuildings, on non-historic additions, or on rear facing roof planes);

Installation of car charging stations in any location on a property or in the right-of-way;

Installation of satellite dishes;

Removal of trees greater than 6" in diameter (d.b.h.) that are dead, dying, or present an immediate hazard.

Removal of trees greater than 6" in diameter (d.b.h.) in the rear of the property that will not impact the overall tree canopy of the surrounding district or historic site;

Replacement tree required as a condition; and, Other minor alterations that may be required by the Department of Permitting Services post-Commission approval that would have no material effect on the historic character of the property.

Staff finds the proposal complies with Chapter 24A, the Secretary of the Interior's Standards for Rehabilitation, and any additional requisite guidance. Under the authority of COMCOR No. 24A.04.01, this HAWP is approved by *Devon Murtha* on ______. The approval memo and stamped drawings follow.



DATE ASSIGNED_



APPLICATION FOR HISTORIC AREA WORK PERMIT HISTORIC PRESERVATION COMMISSION 301.563.3400

APPLICANT:

Name	:		E-r	mail:	
Addre	SS:		Cit	ty:	Zip:
Daytir	ne Phone:		Ta	x Account N	lo.:
AGEN	T/CONTACT (if applic	able):			
Name	:		E-r	mail:	
Addre	SS:		Cit	iy:	Zip:
Daytir	ne Phone:		Co	ntractor Re	gistration No.:
LOCA	TION OF BUILDING/P	REMISI	E: MIHP # of Historic Pr	operty	
Is the	Property Located with	in an His			me
		•	nd Trust/Environmenta	I Easement	te Name on the Property? If YES, include a supporting this application.
(Cond		_		_	uired as part of this Application? on on these reviews as
Buildi	ng Number:		Street:		
Town/	City:		Nearest Cross St	treet:	
Lot: _	Block:		Subdivision:	Parcel	
Lot: Block: Subdivision: Parcel APPROVED TYPE OF WORK PROPOSED: See the checklist on Page 4 to verif					APPROVED
_	roposed work are su cepted for review. Cl		I with this application that apply:	n. Incomp	Montgomery County
	New Construction		Deck/Porch		Historic Preservation Commission
	Addition		Fence		
	Demolition		Hardscape/Landscap		, , ,
	Grading/Excavation		Roof		Karen Wult
I here	eby certify that I have t	he auth	ority to make the foreg	oing applic	/ James State V
and a	accurate and that the o	construc	tion will comply with pl	lans review	1.00 mg
agan	cies and hereby ackno	wladga	and accept this to be a	condition to	or the issuance of this nermit

Signature of owner or authorized agent

Tina Crouse

REVIEWED

By Devon. Murtha at 9:46 am, Jul 29, 2025

HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFING [Owner, Owner's Agent, Adjacent and Confronting Property Owners] Owner's mailing address Owner's Agent's mailing address Adjacent and confronting Property Owners mailing addresses

Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:
Description of Work Proposed: Please give an overview of the work to be undertaken:

APPROVED

Montgomery County

Historic Preservation Commission

Kare Bulit

REVIEWED

By Devon.Murtha at 9:46 am, Jul 29, 2025

Work Item 1:	
Description of Current Condition:	Proposed Work:
Work Item 2:	
Description of Current Condition:	Proposed Work:
Work Item 3:	
Description of Current Condition:	Proposed Work:

HISTORIC AREA WORK PERMIT CHECKLIST OF APPLICATION REQUIREMENTS

	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/ Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/ Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/ Parking Area	*	*		*	*	*	*
Grading/Exc avation/Land scaing	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*



Front of Home



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Montgomery County

Historic Preservation Commission

Kare Bulit

REVIEWED

By Devon.Murtha at 9:46 am, Jul 29, 2025



_eft side of Home



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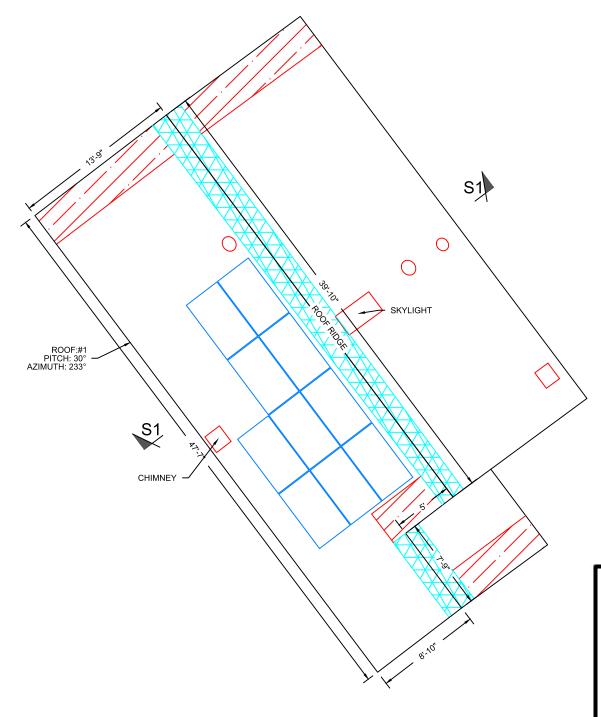
Historic Preservation Commission

Left side Kare Wulit

REVIEWED

By Devon.Murtha at 9:46 am, Jul 29, 2025









FIRE SAFETY ZONE



3' PATHWAYS FROM LOWEST ROOF EDGE TO RIDGE PROVIDED PER R324.6.1



1'6" PATHWAYS PROVIDED ON BOTH SIDES OF RIDGE PER R324.6.2

PLAN VIEW TOTAL ROOF AREA: 1435 SQFT

SOLAR ARRAY AREA: 210.20 SQFT

THE SOLAR ARRAY IS 14.6% OF THE PLAN VIEW TOTAL ROOF AREA

NOTES:

- 1. THE SYSTEM SHALL INCLUDE (10) LONGI LR5-54HPB-405M.
- 2. SNAPNRACK TOPSPEED WILL BE INSTALLED IN ACCORDANCE WITH SNAPNRACK INSTALLATION MANUAL
- 3. REFER TO STRUCTURAL DRAWING FOR SECTIONS MARKED AND ADDITIONAL NOTES.

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Historic Preservation Commission

Kare Bulit



Solar Energy World LLC. 14880 Sweitzer Lane Laurel, MD 20707

International Residential Code (IRC) 2021

National Electrical Code (NEC) 2023

115 MPH

(10) LONGi LR5-54HPB-405M

30 PSF

(10) IQ8+-72-M-US

2.900 kW 4.050 kW

Vincent Verweij 68 Walnut Avenue, Takoma Park, MD 20912

None

REVIEWED

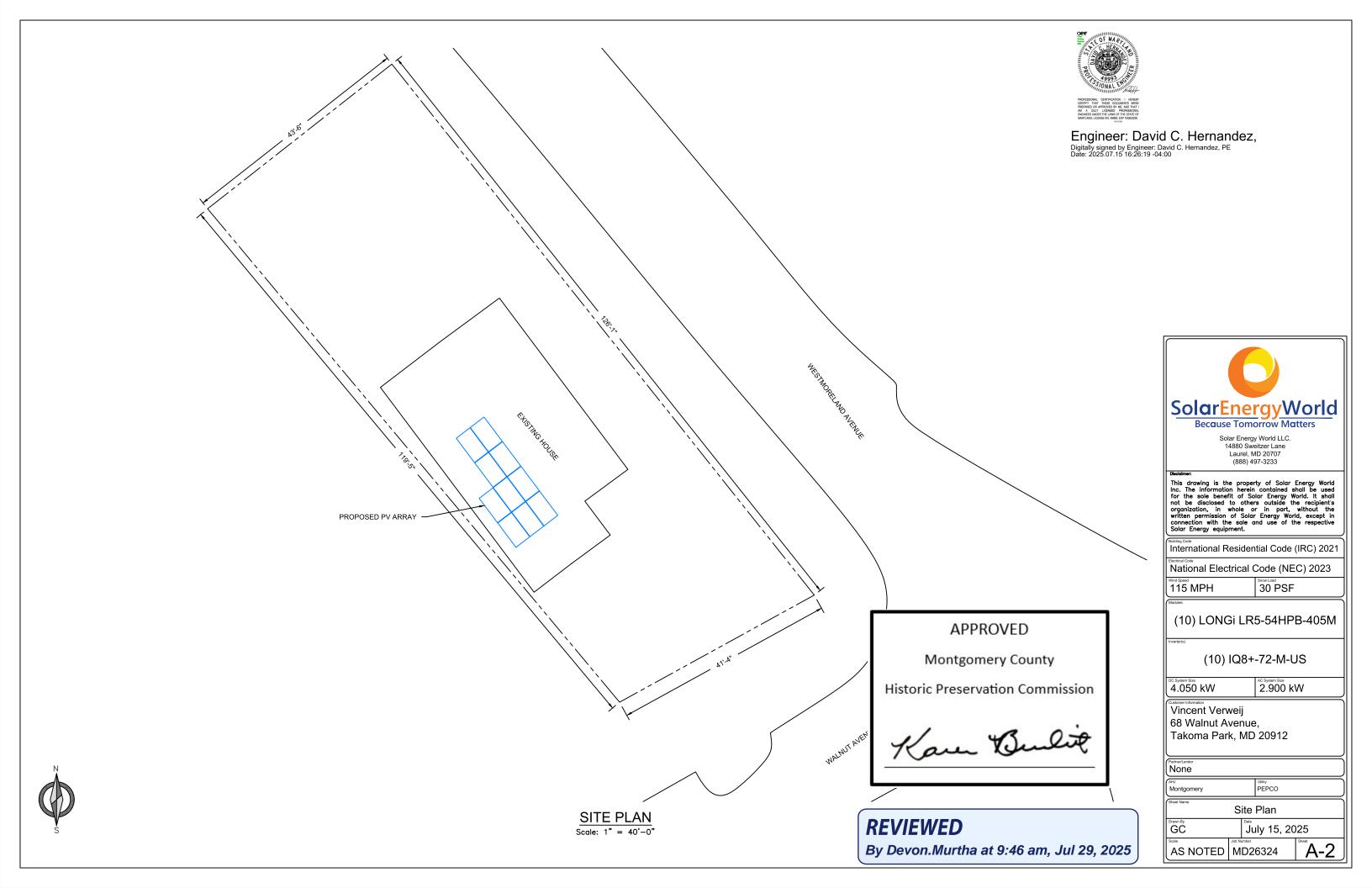
Montgomery

PEPCO

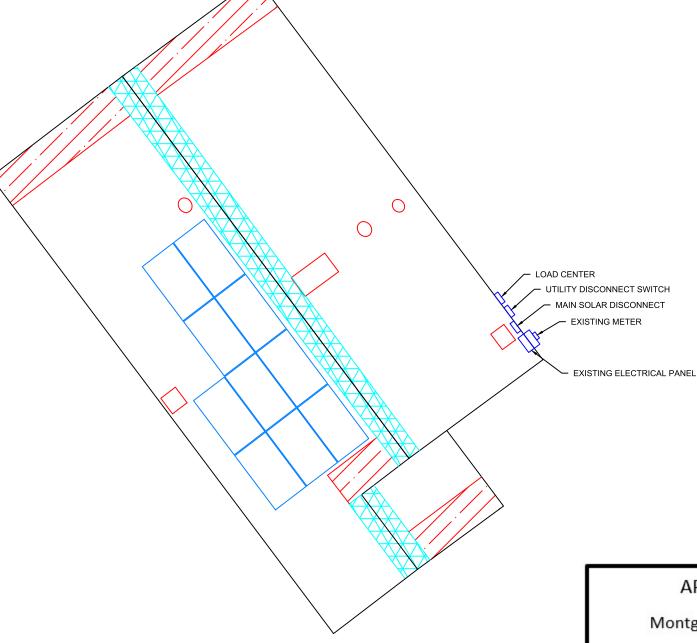
By Devon.Murtha at 9:46 am, Jul 29, 2025

SOLAR PANEL LAYOUT

Scale: 1/8" = 1'-0"







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Historic Preservation Commission

Kare Bulit

EQUIPMENT LOCATION PLAN

NOTE:

EQUIPMENT LOCATION PLAN IS APPROXIMATE, EXACT LOCATION TO BE VERIFIED WITH INSTALLATION CREW AND HOME OWNER AT THE TIME OF INSTALLATION.

REVIEWED

By Devon.Murtha at 9:46 am, Jul 29, 2025



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(10) LONGi LR5-54HPB-405M

(10) IQ8+-72-M-US

2.900 kW 4.050 kW

Vincent Verweij 68 Walnut Avenue, Takoma Park, MD 20912

Partner/Lender None

Montgomery

PEPCO

E-1

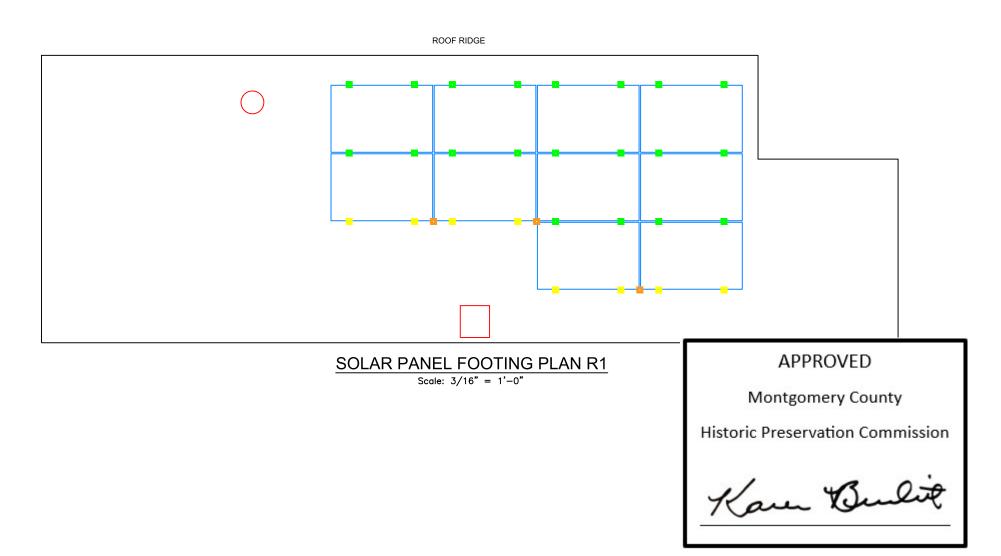
Equipment Location Plan

GC July 15, 2025

AS NOTED MD26324

Bill Of Materials				
Product	Count			
Mounts Without Spacers	20			
Mounts With Spacers	8			
Clamps Without Spacers	0			
Clamps With Spacers	3			





NOTES:

KEY

MOUNTS WITHOUT SPACERS

CLAMPS WITHOUT SPACERS

MOUNTS WITH SPACERS

CLAMPS WITH SPACERS

- 1. SNAPNRACK TOPSPEED SHALL BE INSTALLED IN ACCORDANCE WITH SNAPNRACK INSTALLATION MANUAL.
- 2. ADD TOPSPEED CLAMP IF GREATER THAN (SOLAR PANEL LENGTH / 4) FOR LANDSCAPE OR (SOLAR PANEL WIDTH /4)
- 3. NO SOLAR PANEL SHALL CANTILEVER MORE THAN 1/4 SOLAR PANEL LENGTH OR WIDTH DEPENDING ON ORIENTATION. UNLESS FOR MANUFACTURER SPECIFIED CLAMPING ZONE

REVIEWED

By Devon. Murtha at 9:46 am, Jul 29, 2025



Solar Energy World LLC. 14880 Sweitzer Lane Laurel, MD 20707

This drawing is the property of Solar Energy World Inc. The information herein contained shall be used for the sole benefit of Solar Energy World. It shall not be disclosed to others outside the recipients organization, in whole or in part, without the written permission of Solar Energy World, except in connection with the sole and use of the respective Solar Energy equipment.

International Residential Code (IRC) 2021

National Electrical Code (NEC) 2023

115 MPH

30 PSF

(10) LONGi LR5-54HPB-405M

(10) IQ8+-72-M-US

2.900 kW 4.050 kW

Vincent Verweij 68 Walnut Avenue, Takoma Park, MD 20912

None

Montgomery

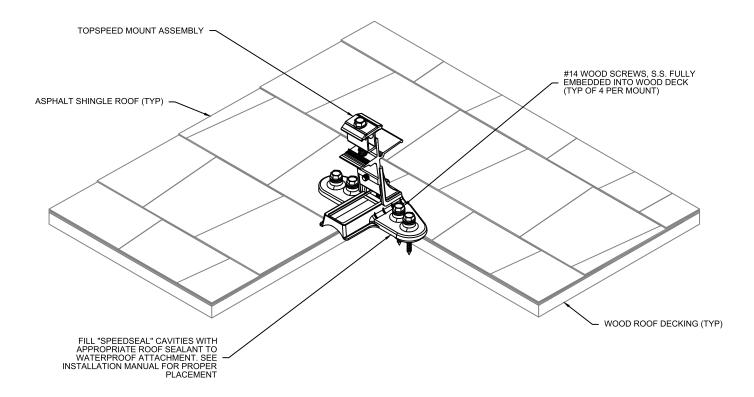
PEPCO

Solar Panel Footing Plan

GC July 15, 2025

AS NOTED MD26324





Structural Details 2x6 O.C. 24" S1 Rafter

TOP OF MODULE HEIGHT

NOTES:

- 1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF INTERNATIONAL RESIDENTIAL CODE (IRC 2021), LOADING CODE (ASCE 7-16), WOOD DESIGN CODE (NDS 2015), AND LOCAL REQUIREMENTS.
- 2. LOAD CRITERIA PER
 - EXPOSURE CATEGORY "B"
 - GROUND SNOW LOAD, Pg = 30 PSF
 - LATERAL LOAD RISK CATEGORY "II"
 - ULTIMATE DESIGN WIND SPEED = 115 MPH
- 3. SOLAR PANELS AND RACKING SYSTEMS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION.
- 4. FOLLOW ALL LOCAL AND FEDERAL SAFETY REQUIREMENTS.

STRUCTURAL ATTACHMENT DETAIL

APPROVED

Montgomery County

Historic Preservation Commission

Kam Bulit

REVIEWED

By Devon.Murtha at 9:46 am, Jul 29, 2025



14880 Sweitzer Lane Laurel, MD 20707

International Residential Code (IRC) 2021

National Electrical Code (NEC) 2023

115 MPH

30 PSF

(10) LONGi LR5-54HPB-405M

(10) IQ8+-72-M-US

2.900 kW 4.050 kW

Vincent Verweij 68 Walnut Avenue, Takoma Park, MD 20912

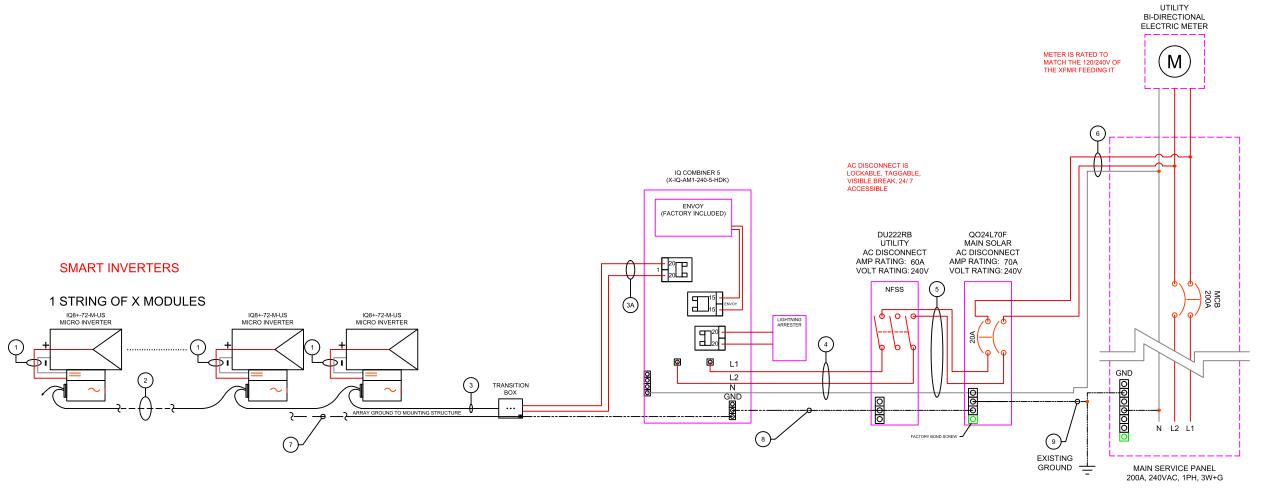
None

PEPCO Montgomery

Structural Attachment Details

GC July 15, 2025

AS NOTED MD26324



MODULE SPECIFICATIONS				
LR5-54HPB-405M				
405 W				
31.18 V				
12.99 A				
37.15 V				
13.78 A				
1500VDC				
INVERTER SPECIFICATIONS				
IQ8PLUS-72-M-US				
60 V				
290 W				
240 VAC				
1.21 A				
97.0%				
ARRAY DETAILS				
10				
1				
4050				

3-LINE DIAGRAM

	WIRE/CONDUIT SCHEDULE ARRAY					
TAG	DESCRIPTION	WIRE SIZE/TYPE	NOTES			
1	Panel to Micro Inverter	PV Wire (Factory Made)	INTEGRATED			
2	Micro Inverter to Micro Inverter	Pre-Manufactured Cable				
3	Micro Inverter to Transition Box	Pre-Manufactured Cable				
3A	Transition Box to Load Center	#10 THHN/THWN-2	INTEGRATED			
4	Load Center to AC Disconnect	#10 Cu THHN/THWN-2				
5	AC Disconnect to AC Disconnect	#10 Cu THHN/THWN-2				
6	AC Disconnect to Interconnection Point	#6 Cu THHN/THWN-2				
7	Equipment Grounding Conductor	#8 Cu Bare Copper Wire				
8	Equipment Grounding Conductor	#8 Cu THHN/THWN-2				
9	Grounding Electrode Conductor	#6 Cu				

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Historic Preservation Commission

ALL CONDUCTOR CONDUITS SHALL AC DISCONNECT

EXPOSED NON-CURRENT CARRYING METAL PARTS SHALL BE GROUNDED AS PER NEC

LINE SIDE INTER-CONNECTION SHALL COMPLY WITH NEC.

10. SMS MONITORING SYSTEM AND IT'S CONNECTION SHOWN IS OPTIONAL. IF USED, REFER TO SMS INSTALLATION MANUAL FOR WIRING METHODS AND OPERATION PROCEDURE.

11. ASHRAE FU REVIEWED (PHOENIX 12. FOR LESS USING TH

12.1. 10AWG By Devon.Murtha at 9:46 am, Jul 29, 2025

WIRE SIZING FOR OCPD

GENERAL ELEC

 EQUIPMENT USED
 EQUIPMENT USED 3. EQUIPMENT SHAL

THE EQUIPMENT

COPPER CONDUC

UNLESS OTHERW

CONDUCTORS SH DE-RATED FOR T

EX (Isc *(1.25)(1.25)(# OF STRINGS IN PARALLEL) = WIRE AMPACITY OR USING NEC TABLE 690.8



Solar Energy World LLC. 14880 Sweitzer Lane Laurel, MD 20707 (888) 497-3233

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International Residential Code (IRC) 2021

National Electrical Code (NEC) 2023

115 MPH

(10) LONGi LR5-54HPB-405M

30 PSF

ROUND

0V, 90°C,

SHALL BE

RACEWAY.

(10) IQ8+-72-M-US

2.900 kW 4.050 kW

Vincent Verweij 68 Walnut Avenue, Takoma Park, MD 20912

None PEPCO Montgomery Electrical 3-Line Diagram GC

July 15, 2025

E-2 AS NOTED MD26324

UL Product iQ®



Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules and Panels

COMPANY

SUNRUN SOUTH LLC, DBA SNAPNRACK

775 Fiero Ln Suite 200 San Luis Obispo, CA 93401 United States

E359313

Cat. No.	Investigated for Bonding	Investigated for Mechanical Loading	System Fire Classification (A, B or C)	Tested in Combination With
Photovoltaic mounting system				

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Montgomery County

Historic Preservation Commission

Marie Burs

REVIEWED

Speed Rail Single Swivel, Threaded Pipe Coupler, Pipe Clamp Assembly, Ground Rail, Mid Clamp, X End Clamp, Universal End Clamp, Speed Rail Tee – 2" Posts, Speed Rail Single by UL 2703 for all modules Listed DNA-120-MF23-XXX DNA-120-BF23-XXX DNA-144-MF23-XXX DNA-144-BF23-XXX	Series 200 - Consisting of the Following Components:	Y*	Y – Minimum mechanical load	N	Listed PV Modules, where XXX is the wattage value. All wattage values are
Threaded Pipe Coupler, Pipe Clamp Assembly, Ground Rail, Mid Clamp, X End Clamp Universal End Clamp, Speed Rail Title — 2" hosts, Speed Rail Torsa Assembly for 2" hosts, Ground Rail Splice Clamp Boviet Solar Bovie	Kee Klamp Tee, Speed Rail Tee,		ratings defined		covered:
Clamp Assembly, Ground Rail, Mid Clamp, X End Clamp, Speed Rail DNA-120-MF23-XXX DNA-120-MF23-XX DNA-120-MF23-			•		
Mid Clamp, Stend Clamp, DINA-120-H23-XXX DINA-144-ME23-XXX DINA-144-ME23-XXX DINA-144-ME23-XXX DINA-144-ME25-XXXX DINA-120-ME26-XXXXW DINA-120-ME26-XXXW DINA-120-ME26-XXW DINA-120-ME26-XXXW DINA-120-ME26-XXXW DINA-120-ME26-XXXW DINA-120-ME26-XXXW DINA-120-ME26-XXXW DINA-120-ME26-XXXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-ME26-XXW DINA-120-M					· ·
Universal End Clarmy, Speed Rail DNA-144-MF22-XXX DNA-144-MF22-XXX DNA-144-MF22-XXX DNA-144-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-120-MF26-XXXW DNA-144-MF26-XXXW DNA-144-MF	•		listed		
Tex = 2" Posts, Speed Rail Single Swivel - 2" Posts, Speed Rail Cross Assembly for 2" Posts, Ground Rail Splice Clamp DNA - 126 MF26 YOXW, DNA - 120 MF26 YOXW DNA - 1					
Swive - 2" Posts, Speed fall Cross Assembly for 2" Posts,					
Cross Assembly for 2" Posts, Ground Rail Splike Clamp					
Ground Rail Splice Clamp DNA-120-BFZE-XXXW Boviet Solar: BVM6610M-XXX BVM6612M-XXX CS6K-XXXX CS6K-XXXX BVM6612M-XXX CS6K-XXXX BVM6612M-XXX CS6F-XXXX BVM6612M-XXX CS6F-XXXX CS6F-XXX CS6F-XXX CS6F-XXXX CS6F-XXXX CS6F-XXX CS6F-XXX CS6F-XXXX CS6F-XXX CS					DNA-120-MF26-XXXW, DNA-120-MF26-
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BVM6610M-XXX BVM6612P-XXX BVM6612P-XXX BVM6612P-XXX BVM6612P-XXX BVM6612M-XXX BVM7612M-XXX-H-HC-BF-DG					
BVM6612P-XXX BVM6612M-XXX BVM6612M-XXX BVM6612M-XXX BVM6612M-XXX-H-HC-BF-DG Canadian Solar: C56K-XXX-M C56K-XXX-M-SD C56K-XXX-M-SD C56K-XXX-MS C56P-XXX-P C56P-XXX-M C50P-XXX-M C50P-XX-M C50P-XXX-M C50P-XX-M C50P-XX-M C50P-XX-M C50P-					
BVM6612M-XXX-H-HC-BF-DG					
BVM7612M-XXX-H-HC-BF-DG Canadian Solar: CS6K-XXX-M CS6K-XXX-M CS6K-XXX-P CS6K-XXX-P CS6K-XXX-P CS6K-XXX-P CS6F-XXX-M CS6P-XXX-P CS6P-XXX-P CS6P-XXX-P CS6P-XXX-P CS6Y-XXX-P CS6Y-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS1X-XXX-MS CS3U-XXX-P CS1X-XXX-MS CS3U-XXX-P CS1X-XXX-MS CS1H-XXX-MS CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6					
Canadian Solar:					
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CS6K-XXX-M-SD CS6K-XXX-M-SD CS6K-XXX-P CS6K-XXX-P CS6K-XXX-MS CS6P-XXX-M CS6P-XXX-M CS6P-XXX-P CS6P-XXX-P CS6C-XXX-M CS3W-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS1X-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXXX-MS CS1Y-XXX-MS CS1Y-XXXMB-AG CS3W-XXXMB-AG CX3W-XXXMB-AG CXXXXMB-AG CXXXXMB-AG CXXXXMB-AG CXXXXMB-AG CXXXXMB-AG CXXXXXMB-AG CXXXXXMB-AG CXXXXXMB-AG CXXXXXMB-AG CXXXXXXXMB-AG CXXXXXXXXB-AG CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					Canadian Solar:
CS6K.XXXP.SD CS6K.XXXP.SD CS6K-XXX-P.SD CS6K-XXX-MS CS6P-XXX-M CS6P-XXX-P CS6P.XXX-P CS6P.XXX-P CS6V-XXX-P CS6V-XXX-P CS6V-XXX-P CS6V-XXX-P CS3K.XXX-P CS3K.XXX-P CS3L-XXX-MS CS3U-XXX-P CS1K.XXX-MS CS1H-XXX-MS CS1H-XXX-					
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CS6K-XXX-MS CS6P-XXX-P CS6P-XXX-P CS6P-XXX-P CS6V-XXX-M CS3W-XXX-P CS6X-XXX-P CS6X-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CSY-XXXMB-AG CS3W-XXXMB-AG CS3W-XXXMB-AG CS3W-XXXMB-AG CS3W-XXXMB-AG CS3W-XXXMS-HL CS3W-XXXMS CS3W-XXXMS CS3W-XXXMS-CS1-XXXMS-CS3W-XXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXMS-CS3W-XXXXXXXXMS-CS3W-XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					
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CS6V-XXX-P CS8W-XXX-P CS6X-XXX-P CS6X-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS CS3W-xxxMS CS3W-xxxXMS CS1W-xxxXMS CXXX					
CS3W-XXX-P CS6V-XXX-P CS6X-XXX-P CS3K-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxMS CS3W-xxxXMS CS3W-xxxXMS CX3W-xxxXP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CCTM10XXXHC11-06					
CS6V-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxXP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06					
CS6X-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS61-54TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS CS3W-xxx, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS3W-XXXMB-AG CS3W-XXXMB-AG CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxxMS CS3W-xxxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CHint Solar:					
CS3K-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxXP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CS3U-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS3W-XXXMB-AG CS3W-XXXMB-AG CS6R-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxx,P, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar:					
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CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 Chint Solar:					
CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS3N-XXX-MS CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxxMS CS3W-xxxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
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CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar:					
CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 Chint Solar:					
CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar:					
CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					
CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					13211 1323, 1111212 7000 13 303 10 730
CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar:					CertainTeed -
CTM10XXXHC11-06 Chint Solar:					
Chint Solar:					
1 1 1 1					CIM10XXXHC11-06
					Chint Solar:
CLIDINOUTENT AAA					
CHSM6612M/HV-XXX					
CHSM6612M/HV-XXX CHSM6612M(BL)-XXX					
**CHSM72M-HC-XXX (Astro 4)					
**CHSM72M-HC-XXX (Astro 5)					

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a...

10/21, 1.00 1 W	
	Crossroads Solar:
	Crossroads Solar xxx
	Dehui Solar:
	DH-M760B-XXXW
	DH-M760W-XXXW
	DH-M772W-XXXW
	DH-M760F-XXXW
	DH-M772F-XXXW
	DIT-WITTEL -XXXVV
	ET Solar:
	ET-P660XXXBB
	ET-P660XXXWB
	ET-P660XXXWW
	ET-P660XXXWWG
	P660XXXWB/WW
	P660XXXWWG
	M660XXXBB
	M660XXXWW
	Freedom Forever Procurement:
	FF-MP-BBB-xxx, where xxx is 365 to 410.
	Hansol Technics
	HAXXXAA-NNEA0
	where XXX is 420 to 440
	Where 7000 is its to the
	Hanwha/Q Cells:
	Q.PEAK BLK-G3.1-XXX
	Q.PEAK G3.1-XXX
	Q.PLUS BFR-G3.1-XXX
	B.LINE PLUS BFR-G4.1-XXX
	B.LINE PRO BFR-G4.1-XXX
	Q.BASE GY-XXX
	Q.PEAK BFR-G4-XXX
	Q.FEAN DFN-U4-AAA

Q.PEAK BLK-G4.1/TAA-XXX Q.PEAK G4-XXX Q.PEAK G4.1-XXX Q.PEAK G4.1/MAX-XXX Q.PEAK G4.1/TAA-XXX Q.PLUS BFR-G4-XXX Q.PLUS BFR-G4.1-XXX Q.PLUS BFR-G4.1/TAA-XXX Q.PLUS G4-XXX Q.PLUS GY-XXX Q.PLUS BFR-GY-XXX Q.PRO BFR-G4-XXX Q.PRO BFR-G4.1-XXX Q.PRO BFR-G4.3-XXX Q.PRO BFR-GY-XXX Q.PRO BLK-GY-XXX Q.PRO G4-XXX Q.PRO GY-XXX Q.PRO GY/SC-XXX Q.PEAK DUO-G6+-XXX Q.PEAK DUO-BLK-G6+-XXX Q.PEAK DUO-G6-XXX Q.PEAK DUO-BLK-G6-XXX Q.PEAK DUO-G8+-XXX Q.PEAK DUO-BLK-G8+-XXX

Q.PEAK BFR-G4.1-XXX Q.PEAK BLK-G4.1-XXX 11/19/24, 4:30 PM

1		,g 2011000, (LODEAK DUO CO VVV
UR-40 Mounting and Bonding	Υ*	Y – Minimum	Y – Class A with	Q.PEAK DUO-G8-XXX
Systems for use with		mechanical load	and without skirt	Q.PEAK DUO-BLK-G8-XXX
Photovoltaic Modules, consisting		ratings defined	assembly for Type	Q.PLUS L-G4-XXX
of the following components:		by UL 2703 for	1, Type 2 and Type	Q.PLUS L. G4.2 XXX
UR-40 Rail, Mid Clamp, X End		all modules	29 modules	Q.PLUS L-G4.2-XXX Q.PEAK L-G4.1-XXX
Clamp, Universal End Clamp, UR-		listed		Q.PEAK L-G4.1-XXX
40 Splice, UR-40 Composition				Q.PLUS DUO-L-G5-XXX
Mount Kits, SpeedSeal Foot				Q.PLUS DUO-L-G5-XXX
Mount Kit, SpeedSeal Deckfoot				Q.PLUS DUO-L-G5.1-XXX Q.PLUS DUO-L-G5.2-XXX
Mount Kit for UR-40, Standard				Q.PLUS DUO-L-G5.3-XXX
Standoff for UR-40, Four Hole				Q.PEAK DUO-L-G5.2-XXX
Standoff for UR-40, Heavy Duty				Q.PEAK DUO-L-G5.3-XXX
Standoff for UR-40, OmniBase				Q.PEAK DUO-L-G7-XXX
Standoff for UR-40, Metal Roof				Q.PEAK DUO-L-G7.1-XXX
Base Standoff for UR-40, UR-40				Q.PEAK DUO-L-G7.2-XXX
Corrugated Block, Standard Base				Q.PEAK DUO-L-G7.3-XXX
Seam Clamp for UR-40, Wide				Q.PEAK DUO-L-G6-XXX
Base Seam Clamp for UR-40, UR-				Q.PEAK DUO-L-G6.2-XXX
40 Universal Tile Hook, UR-40				Q.PEAK DUO-L-G6.3-XXX
Flat Tile Hook, UR-40 Tile Hook				Q.PEAK DUO-L-G8-XXX
F, UR-40 Tile Hook WS, Flat Tile				Q.PEAK DUO-L-G8.1-XXX
Replacement Kit for UR-40, S Tile				Q.PEAK DUO-G5-XXX
Replacement Kit for UR-40, W				Q.PEAK DUO-BLK-G5-XXX
Tile Replacement Kit for UR-40,				Q.PLUS DUO-G5-XXX
UR-40 Hanger Bolt Clamp, UR-				Q.PEAK DUO-G7-XXX
40 Tilt Kits, SnapNrack Ground				Q.PEAK DUO-BLK-G7-XXX
Lug Models 242-02101 or 242-				Q.PEAK DUO-G7.2-XXX
92202, Ilsco Ground Lug Models				Q.PEAK DUO BLK-G6+/AC-XXX
GBL-4DBT or SGB-4, UR-40 Skirt Assembly, MLPE Frame				Q.PEAK DUO-ML-G9-XXX
Attachment Kit, MLPE Rail				Q.PEAK DUO BLK-G5/TS-XXX
Attachment Kit, Smart Clips, Tilt				Q.PEAK DUO G6+/TS-XXX
Kits, Seam Clamp Simple Tilt Kits,				Q.PEAK DUO BLK-G6+/TS-XXX
Adjustable Tile Hook,				Q.PEAK DUO XL-G9.3-XXXQ.PEAK DUO-L-
OmniShield				G8.2-XXX
Cirinisticia				Q.PEAK DUO-L-G8.3-XXX
				Q.PEAK DUO-G5/SC-XXX
				Q.PEAK DUO-BLK-G5/SC-XXX
				Q.PEAK DUO-G6+/SC-XXX
				Q.PEAK DUO-BLK-G6+/SC-XXX
				Q.PEAK DUO-BLK-ML-G9-XXX
				Q.PEAK DUO-G5/TS-XXX
				Q.PEAK DUO-G6/TS-XXX
				Q.PEAK DUO BLK-G6/TS-XXX
				Q.PEAK DUO XL-G9.2-XXX
				Q.PEAK DUO BLK-G9-XXX
				Q.PEAK DUO ML-G9+-XXX
				Q.PEAK DUO BLK-G9+-XXX
				Q.PEAK DUO BLK ML-G9+-XXX
				Q.PEAK DUO XL-G10.2-XXX Q.PEAK DUO XL-G10.3-XXX
				Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.d-XXX
				1
				Q.PEAK DUO L-G8.3/BGT-XXX Q.PEAK DUO BLK ML-G10+-XXX
				Q.PEAK DUO BLK ML-G10+-XXX
				Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10.a+-XXX
				Q.PEAK DUO BLK ML-G10.a+-XXX Q.PEAK DUO BLK ML-G10.a-XXX
				Q.PEAK DUO XL-G9.3/BFG-XXX
				Q.PEAK DUO XL-G9.3/BFG-XXX
				Q.PEAK DUO XL-G10.5/BFG-XXX
				Q.PEAK DUO L-G8.3/BFG-XXX
				Q.TRON_XL-G2.3/BFG-XXX
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11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems,	Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a
	1 1	Q.PEAK DUO ML-G10-XXX
	1 1	Q.PEAK DUO ML-G10+-XXX
	1 1	Q.PEAK DUO ML-G10.a+-XXX
	1 1	Q.PEAK DUO ML-G10.a-XXX
	1 1	Q.PEAK DUO BLK ML-G10.a+/TS-XXX,
	1 1	Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-
	1 1	G10-XXX, Q.PEAK DUO G10+-XXX, Q.PEAK
	1 1	DUO BLK-G10+-XXX
	1 1	Q.TRON-G1+ XXX
	1 1	Q.TRON BLK-G1+ XXX
	1 1	Q.PEAK DUO BLK G10+/AC XXX
	1 1	Q.PEAK DUO BLK G10+/HL XXX
	1 1	Q.PEAK DUO XL-G11.3 XXX
	1 1	Q.PEAK DUO XL-G11.3 BFG XXX
	1 1	Q.Tron BLK M-G2+ XXX,
	1 1	Q.Tron M-G2+ XXX,
	1 1	Q.PEAK DUO BLK ML-G10+/t XXX
	1 1	Q.PEAK DUO XL-G10.d/BFG
		Q.TRON BLK M-G2+/AC XXX
		HT-SAAE:
		HT60-166M-XXX where XXX is 340-390;
		HT60-182M-XXX
		Hanwha Solar One:
	1 1	HSL60P6-PB-2-XXXQ
		HSL60P6-PB-4-XXXQ
		Heliene:
	1 1	60M-XXX
	1 1	60P-XXX
	1 1	72M-XXX
		72P-XXX
		Runergy:
	1 1	HY-DH108N8
	1 1	HY-DH108P8-XXX(Y)
	1 1	HY-DH144N8
		HY-DH144P8
		Hyundai:
		HiS-MXXXRG
		HiS-SXXXRG
		HiS-SXXXRW
		HiA-SXXXMS
	1 1	HiS-MXXXMG
		HiS-SXXXMG
		HiD-SXXXRG
		HiS-SXXXXY
		HiS-SXXXYI
		HiS-SxxxYH
		HiN-SxxxXG(BK)
		All may be followed by (BK)
		JA Solar:
		JAM6-60-XXX/SI
		JAP6-60-XXX/3BB
		JAM60S09-XXX/PR
		JAM60S10-XXX/MR
		JAM60S10-XXX/PR
		JAM60S12-XXX/PR
		JAM60S17-XXX/MR
- attna://ig.ulprocpostor.		

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems, Mounting D	evices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a
		JAP72S01-XXX/SC
		JAM72S09-XXX/PR
		JAM72S10-XXX/MR
		JAM72S10-XXX/PR
		JAM72S12-XXX/PR
		JAP6(k)-72-XXX/4BB
		JAM54S30-XXX/MR where XXX is 400-410,
		JAM54S31-XXX/MR
		JAM72D30-XXX/MB
		JAM72D10-XXX/MB
		Jinko Solar:
		JKMXXXM-60
		JKMXXXP-60
		JKMXXXP-60-J4
		JKMXXXP-60-V
		JKMXXXP-60B-J4
		JKMXXXPP-60
		JKMXXXPP-60-V
		JKMXXXII 60 V
		JKMXXXM-60L
		JKMXXXM-60HBL
		JKMXXXM-72
		JKMXXXP-72
		JKMXXXP-72 JKMXXXP-72-V
		I I I I I I I I I I I I I I I I I I I
		JKMXXXPP-72
		JKMXXXPP-72-V
		JKMSXXXP-72
		JKMXXXM-72HL-V
		JKMXXXM-72HL-TV
		JKMXXXM-72L-V
		JKMXXXM-72HBL
		JKMXXXM-6TL3-B
		JKMXXXM-6RL3-B
		JKMXXXM-7RL3-V
		JKMXXXM-7RL3-TV
		JKMXXXM-72HL4-V
		JKMXXXM-72HL4-TV
		JKMXXXN-54HL4-B
		KB Solar LLC:
		MODULE-KBS-375-MONO
		MODULE-KBS-375-MONO-BF
		MODULE-KBS-450-MONO
		MODULE-KBS-450-MONO-BF
		Kyocera:
		KUXXX-6YYY
		KUXXX-8YYY
		LG:
		LGXXXN1C-A5
		LGXXXN1K-A5
		LGXXXQ1C-A5
		LGXXXQ1K-A5
		LGXXXS1C-A5
		LGXXXN2C-B3
		LGXXXN2W-B3
		LGXXXN1C-G4
		LGXXXN1K-G4
		LGXXXS1C-G4
		LGXXXN2C-G4
I	I I	1 -3

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems, Mounting Devices	s, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a
1	1 1	LGXXXN2K-G4
		LGXXXN2W-G4
		LGXXXS2C-G4
		LGXXXS2W-G4
		LGXXXN1C-V5
		LGXXXN1W-V5
		LGXXXN2T-V5
		LGXXXN2T-J5
		LGXXXN1T-V5
		LGXXXA1C-V5
		LGXXXM1C-L5
		LGXXXN1C-N5
		LGXXXM1K-L5
		LGXXXN1K-L5
		LGXXXN1C-A6
		LGXXXQ1C-A6
		LGXXXM1K-A6
		LGXXXA1C-A6
		LGXXXN1K-A6
		LGXXXN1W-A6
		LGXXXQ1K-A6
		LGXXXM1C-A6
		LGXXXQAK-A6
		LGXXXN2W-E6
		LGXXXN1K-E6
		LGXXXQAC-A6
		LGXXXN1K-B6 LGXXXN2T-E6
		LGXXXN3K-V6
		LGAXXINSK-V6
		Longi:
		LR6-60-XXXM
		LR6-60BK-XXXM
		LR6-60HV-XXXM
		LR6-60PB-XXXM
		LR6-60PE-XXXM
		LR6-60PH-XXXM
		LR6-60HPB-XXXM
		LR6-60HPH-XXXM
		LR4-72HPH-XXXM
		LR4-60HIB-XXXM
		LR4-60HIH-XXXM
		LR4-60HPB-XXXM
		LR4-60HPH-XXXM
		LR6-60HIB-XXXM
		LR6-60HIH-XXXM
		LR5-54HPB-XXXM
		LR5-54HABB-XXXM
		Maxeon Solar Technologies, LTD.
		SPR-MAX3-XXX-BLK-R where xxx is 395-
		420
		Meyer Burger:
		Meyer Burger Black **
		Meyer Burger White **
		Mission Solar:
		MSEXXXSO5T
		MSEXXXSO5K
		MSEXXXSQ5T
		MSEXXXSQ5K
https://ia.ulprospector.c	com/en/profile?e=122609	7/4

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules
	MSEXXXMM4J
	MSEXXXMM6J
	MSEXXXSO6W
	MSEXXXSO4J
	MSEXXXSO6J
	MSEXXXSQ6S
	MSEXXXSQ4S
	MSEXXXSR8K
	MSEXXXSR8T
	MSEXXXSR9S
	MSE60AXXX
	MSEXXXTS60
	MSEXXXSX5K
	MSEXXXSX5T
	MSEXXXSX6S
	MSEXXXSX6W
	TXI6-XXX120BB
	MSExxxSX5R, where xxx is 375 to 390
	TXI10-XXX108BB
	MSEXXXHT0B
	where XXX is 390 to 410
	MSEXXXSX9R
	where XXX is 380 to 400

where XXX is 380 to 400

Mitrex Inc: Mxxx-I3H M390-A1F

Next Energy Alliance: USNEA-XXXM3-60 USNEA-XXXM3B-60 USNEA-XXXM3-72 USNEA-XXXM3B-72

Panasonic:

VBHNXXXKA01

VBHNXXXKA02

VBHNXXXSA16

VBHNXXXKA03

VBHNXXXKA04

VBHNXXXSA17

VBHNXXXSA18

VBHNXXXSA17E

VBHXXXRA18N

VBHXXXRA03K EVPVXXXPK

EVPVXXXHK

EVPVXXXHK2 where XXX is 420 to 430

Phono Solar:

PSXXXM-20/U

PSXXXMH-20/U

PSxxxM8GF-24/TH where xxx is 520 to 550, PSxxxM8GFH-24/TH, where xxx is 520 to 550,

PSxxxM8GF-18/VH, where xxx is 390 to 410, PSxxxM8GFH-18/VH, where xxx is 390 to 410,

PSxxxM6-24/TH, where xxx is 510 to 550.

REC:

RECXXXPE

1	1	11	a	121	4:30	DM/
		/ I	м	1/4	4.30	P_{IVI}

U. B. Gib. Mourting and bonding systems for use with Photovolatic Modules, consisting of the following components: U. R. 60 Rail, Mic Clarmy, X. fed.		, 			PECONORE BUY	1
Systems for use with Protocolonization Mouted by Cut 2703 for all modules of the following components: US 60 Rall, Mid Clamp, UR 60 Spike, UR-60 Composition of the UR-60 Spike, UR-60 Composition of UR-60, Pour Hole Sandorf for UR-60, Pour Hole Sandorf for UR-60, Drain Base Sandorf for UR-60, UR-60 Compared Sinck Standard Base Sandorf for UR-60, UR-60 Compared Sinck Standard Base Sandorf for UR-60, Wide Base Sand Clamp for UR-60, Wide Base Sandorf for UR-60, Wide Base Sandorf for UR-60, Wide Base Sand Clamp for UR-60, Wide Base Sandorf for UR-60, UR-60 Hanger Bolt Clamp, UR-60 Hanger Bolt Clamp, UR-60 Hanger Bolt Clamp, UR-60 Hanger Bolt Clamp, UR-60, UR-60 Hang	UR-60 Mounting and Bonding	γ*	Y – Minimum	Y – Class A with		
Pentovolatic Modules, consisting of the following components by U. 278 for 3 modules (1.5 ppc 2 and flype 3 modules) (1.5 ppc 3 modules) (mechanical load	and without skirt		
of the following components: UR-60 RI, Min Clamp, VR-6d Clamp, Universal End Clamp, UR-60 Solitice, UR-60 Composition Mount Kits, SpeedSeal Foot Mount Kits, SpeedSeal Foot UR-60, Four Hole Standoff for UR-60, Clamp Base Sandoff for UR-60, UR-60 Wish Base Sandoff for UR-60, UR-60 Wish Base Sam Clamp for UR-60, Wish Base Sam Clamp for UR-60, Wish Base Sam Clamp for UR-60, Wish Base Soom			ratings defined	assembly for Type		
U.R. 60 Rail. Mid Clarmo, X. End Clamp, Universal End Clarmy, U.R. 60 Spilice, U.R. 60 Composition Mount Kits, Speed Saal Foot t Mount Kit, Standard Standorff for U.R. 60, Heavy Dury, Standard for U.R. 60, Meal Roof Base Standorff for U.R. 60, Meal Roof Base S	_					
Camp, Universal End Clamp, UR- 80 Spike, UR- BO Composition Mount Kits, SpeedSeal Front Mount Kits, SpeedSeal Front Mount Kits, SpeedSeal Front Mount Kits, SpeedSeal Front With Clamp Composition Mount Kits, SpeedSeal Front UR-60, Four Hoe Standoff for UR-60, Four Hoe Standoff for UR-60, Mexic Moof Sear Standoff for UR-60, UR-60, Mexic Beas Sear Clamp for UR-60, Winde Beas Sear C			•	* *		
60 Solike, UH-60 Camposition Mount Kit, Standard Standorff for Mount Kit, Standard Standorff for US-60, Heavy Duly Standorff for US-60, West Recoxottraw 72 US-60, West Recoxottraw 72 US-60, West Recoxottraw 72 US-60, West Base Standorff for US-60 File Hook US-60 US-60 File Hook US-60 US-60 File Hook US-60 US-60 File Hook WS-60 US-60 File File WS-60 US-60 File WS-60 US-60 File WS-60 US-60 File File WS-60 US-60	· · · · · · · · · · · · · · · · · · ·					
Mount Kits, SpeedSeal Foot Maunt Kits, Sandard Standorf for U.8-6.0, Four Hele Standorf for U.8-6.0, Four Hele Standorf for U.8-6.0, Chroliby Standorf for U.8-6.0, Chroliby Standorf for U.8-6.0, Chrolibase Standorf for U.8-6.0, Chrolibase Standorf for U.8-6.0, U.R-6.0, U.R					RECXXXNP	
Mount Kit, Standard Standard for UR-60, Deep Dury Standard for UR-60, Deep Dury Standard Standard for UR-60, Meany Dury Standard for UR-60, Metal Roof State Standard for UR-60, Own Base Standard for UR-60, White Standard State Standard for UR-60, UR-60 Corrugated Block, Standard Bloo State Clamp for UR-60, White Base Standard State Standard St	'				RECXXXTP2M	
UR-60, Four Hole Standoff for UR-60, Dury Duty Standoff for UR-60, Dury Duty Standoff for UR-60, Ornvilses Standoff for UR-60, Ornvilses Standoff for UR-60, Ornvilses Standoff for UR-60, Medial Roof Base Standoff for UR-60, UR-60 Corrugated Block, Standard Blace Seam Clamp for UR-60, UR-60 Blace UR-60 Blace Seam Clamp for UR-60, UR-60 Blace UR-60	·				RECXXXTP72	
U.B. 6.0. Heavy Duty Standorff for UR 6.0. Heavy Duty Standorff for UR 6.0. Metal Roof Base Standorff for UR 6.0. Metal Roof Base Standorff for UR 6.0. Metal Roof Base Standorff for UR 6.0. West Base Seam Clamp for UR 6.0. West Base Seam For UR 6.0. West Base Seam For UR 6.0. West Base Seam For U					RECXXXPE72	
U.H6.Q. OmniBase Standoff for U.B. 60, Mutal Book Bases Standoff for U.B. 60, Mutal Book Bases Standoff for U.B. 60, U.B. 60, Mutal Book Bases Standoff Base Seam Clamp for U.R. 60, U.B. 60 Corrupated Bitock, Standard Base Seam Clamp for U.R. 60, U.B. 60 Dilat Book U.B. 60, U.B. 60 Dilat Book U.B					RECXXXPE72XV	
U.RGO, Metal Roof Base Standorff for U.RGO, UR-GO Corrugated Block, Standard Base Searm Clamp for U.RGO, Wride Base Searm Clamp for U.RGO, Wride Base Searm Clamp for U.RGO, Wride Base Searm Clamp for U.RGO, U.RGO Universal Tile Hook, U.RGO Tile Hook F, U.RGO Tile Hook WS, Blat Tile Replacement fit for U.RGO, STIle Replacement fit for U.RGO, STIle Replacement fit for U.RGO, STIle Replacement fit for U.RGO, U.RGO U.RGO Hanger Bolt Clamp, U.RGO U.RGO Hanger Bolt Clamp, U.RGO U.RGO Hanger Bolt Clamp, U.RGO U.RGO Till Kits, Snaphviack Ground U.RGO Till Kits, Snaphviack Snaphviack Ground U.RGO Till Kits, Snaphviack S					RECXXXTP2M 72	
for UR. 60, UR. 60 Corrugated Block Standard Base Seam Clamp for UR. 60, UR. 60					RECXXXTP2M 72 BLK	
Block, Standard Base Seam Clamp for UR-60, Wide Base Seam Clamp for UR-60, UR-60 Base Seam Clamp for UR-60, UR-60 Base Seam Clamp for UR-60, UR-60 Base Seam Clamp for UR-60 IL-60 Base Seam Clamp for UR-60, UR-60 Base Seam Clamp for UR-60, UR-60 Base Seam Clamp for UR-60, UR-60 Base Seam Clamp for UR-60 Base Seam Clamp for UR-60, UR-60 Base Base Seam Clamp Seam Base Seam Base Base Seam Clamp Seam Base Seam					RECXXXTP2M 72 BLK2	
Clamp for UR-60, Wide Base Sam Clamp for UR-60 UR-60 Universal Tile Hook, UR-60 Flat Tile Hook, UR-60 Flat Tile Hook, UR-60 Flat Tile Hook, UR-60 Tile Hook F, UR-60 Tile Hook WS, flat Tile Replacement Kit for UR-60, W Tile RECXXXTP3 Til					RECXXXTP2SM 72	
Seem Clamp for UR-60, UR-60 Inleresal Tile Hook, UR-60 Flat Iile Hook, UR-60 Tile Hook F, UR-60 Tile Hook WS, Flat Tile Replacement Kit for UR-60, S Tile Replacement Kit for UR-60, S Tile Replacement Kit for UR-60, W Iile Replacement Kit for UR-60, W Iile Replacement Kit for UR-60, W Iile Replacement Kit for UR-60, W IIII Replacement Kit for UR-60, W IIII Replacement Kit for UR-60, W IIII REPLACEMENT REPLACEMENT RECOXXAA PURE 2 RECOXAA PURE 3 RECOXAA PURE 2 RECOXAA PURE 3 RECOXAA PURE 3 RECOXAA PURE 2 RECOXAA PURE 2 RECOXAA PURE 3 RECOXAA PURE 3 RECOXAA PURE 3 RECOXAA PURE 2 RECOXAA PURE 3 RECOXAT PURE 3 RECOXAA P					RECXXXTP2SM 72 BLK	
Universal Tile Hook, UR-60 Flat Tile Hook, UR-60 Tile Hook F, UR-60 Tile Hook WS, Flat Tile Replacement Kit for UR-60, W Tile Replacement Kit Kit For UR-60, W Tile RECXXXAP P Tile RECXXXAP PUR-EX TILE TILE TILE TILE TILE TILE TILE TILE	•				RECXXXTP2SM 72 BLK2	
Tille Hook, UR-60 Tille Hook F, UR-60, ST Tile Replacement Kif for UR-60, W Tile Replacement Kif for UR-60, W Tile Replacement Kif for UR-60, UR-60 UR-60 Hanger Bolt Clamp, UR- 80 Till Kifs, SanpNack Ground Lug Models 242-02101 or 242- 92202, lisco Ground Lug Models GBL-4DET or SGB-4, UR-40 Skirt Assembly, MURE Frame Attachment Kif, MURE Rail Attachment Kif, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar. SEG Solar	-				RECXXXAA	
UR-60 Tile Hook WS, Flat Tile Replacement Kit for UR-60, S Tile Replacement Kit for UR-60, W Tile Replacement Kit for UR-60, W Tile Replacement Kit for UR-60, W Tile Replacement Kit for UR-60, UR-60 House Flat Clare RECXXXNP2 RECXXXNP2 RECXXXNP2 RECXXXA PURE 2 RECXXXA PURE RX - All may be followed by BLK or BLACK GBL 40BT or 5CB-4, UR-40 Skirt Assembly, MuPE Frame Attachment Kit, MuPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. - SEG Solar SEG-XXX-BMB-HV, SEG-XXX-BMB-HV SEG-XXX-BMB-HV SEG-XXX-BMB-HV SEG-XXX-BMB-HV SEG-XXX-BMB-HV SEG-XXX-BMB-HB SEG-XXX-BMD-HV & SEG-XX-BMD-HV & SEG					RECXXXTP3	1
Replacement Kit for UR-60, S Tile Replacement Kit for UR-60, W Tile Replacement Kit for UR-60, UR-60 UR-60 Hanger Bolt Clamp, UR- 60 Tilt Kits, SnapMrack Ground Lug Models 242-02101 or 242- 92202, lisco Ground Lug Models GBL-4DBT or 568-4, UR-80 Skirt Assembly, MLPE Frame Attachment Kit, MLPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-XXX-BMB-HV & SEG-XXX-BMB-HV & SEG-XXX-BMB-HV & SEG-XXX-BMB-HV B SEG-XXX-BMD-HV B SEG-XXX-BMD-HV B SEG-XXX-BMD-HV B SEG-XXX-M SLAXXX-M SLAXXX-					RECXXXTP3M	
Replacement Kit for UR-60, W Tile Replacement Kit for UR-60, UR-60 Tilt Kits, SnapNrack Ground Lug Models 224-02101 or 242- 92202, lisco Ground Lug Models GBL-4DBT or SGB-4, UR-40 Skirt Assembly, MLPE Frame Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG XXX-BMB-HV, SEG XXX-BMB-HV, SEG-xxx-BMD-TB, where xxx can be 370-425 SEG-XXX-BMD-HV & SEG-xxx-BMD-HV & SEG-xxx-BMD-TB, where xxx can be 370-425 SEG-XXX-BDB-BG where xxx is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXX-P SSAXX-P SSAXX-P SSAXX-P SSAXXX-P SS					RECXXXTP4	
Tile Replacement Kir for UR-60, UR-60 Hanger Bolt Clamp, UR- 60 Tilt Kits, Snaphrack Ground Lug Models 242-02101 or 242- 92202, Ilsco Ground Lug Models GBL-4DBT or SGB-4, UR-40 Skirt Assembly, MLPE Frame Attachment Kit, MLPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar- SEG-XXX-BMB-HV, SEG-XXX-BMB-HV, SEG-XXX-BMB-HV, SEG-XXX-BMB-HV, SEG-XXX-BMB-TB SEG-XXX-BMB-TB SEG-XXX-BMD-TB, where xxx is 420-435 Silfab: SLAXXX-P SLAXXX-P SLAXXX-P SLAXXX-P SLAXXX-P SLAXXX-P SLAXXX-P SLXXXX-P SLXXX-P SLXXXX-P SLXXXX-P SLXXXX-P SLXXXX-P S	•				RECXXXAA Pure	
UR-60 Hanger Bolt Clamp, UR- 60 Tilt Kits, SnapNrack Ground Lug Models 242-02101 or 242- 92202, lisce Ground Lug Models GBL-4DBT or SGB-4, UR-40 Skirt Assembly, MLPE Frame Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-xxx-BMB-TB SEG-xxx-BMD-TB SEG-xxx-BMD-TH SEG-xxx-BMD-TB Where xxx can be 370-425 SEG-XXX-BTD-BG where xxx is 420-435 Silfab: SLAXXX-P SLAXXX-P SLAXXX-P SLGXXX-P SLGXX-P SLGXXX-P	· ·				RECXXXNP2	
60 Tilt Kits, Snaphrack Ground Lug Models 242-02101 or 242- 92202, lisco Ground Lug Models GBL-4D8T or SGB-4, UR-40 Skirt Assembly, MIPE Frame Attachment Kit, MIPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-XXX-BMB-HV, SEG-XXX-BMB-TB SEG-XXX-BMD-TB, where xxx can be 370-425 SEG-XXX-BMD-TB, where xxx can be 370-425 SEG-XXX-P SLAXXX-P SSAXXX-P SLAXXX-P SSAXXX-P SLGXXX-M SLGXXX-P SLGXXX-M SLGXXX-D SLGXXX-M SLGXXX-D SLGXXX-M SLGXXX-D SLGXX-D SLGXX-	•				RECxxxAA PURE 2	1
Lug Models 242-02101 or 242- 92202, lisco Ground Lug Models GBL-4DBT or 5GB-4, UR-40 Skirt Assembly, MLPE Frame Attachment Kit, MLPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-xxx-BMB-TB SEG-xxx-BMD-HV & SEG-xxx-BMD-HV & SEG-xxx-BMD-TB, where xxx can be 370-425 SEG-XXX-BMS-BMB-BB, SLAXXX-M SLAXXX-M SLAXXX-P SLGXXX-P SLGXXX-P SLGXXX-M SLGXXX-D SLGXX-D SLGXXX-D SLGXX-D					RECxxxAA PURE-RX	
92202, Ilsco Ground Lug Models GBL-4DBT or SGB-4, UR-40 Skirt Assembly, MIPE Frame Attachment Kit, MIPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-xxx-BMB-TB SEG-xxx-BMD-TB, where xxx can be 370-425 SEG-XXX-BMD-TB, where xxx can be 370-425 SEG-XXX-BMD-TB, SLAXXX-P SLAXXX-P SLAXXX-P SLAXXX-P SLAXXX-P SLGXXX-P SLGXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXX-P SLGXX-	•					1
Renesola: Assembly, MLPE Frame Attachment Kit, MLPE Rail Attachment Kit, MLPE Rail Attachment Kit, MLPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-xxx-BMB-TB SEG-xxx-BMD-TB, where xxx can be 370-425 SEG-XXX-BTD-BG where xxx is 420-435 Siffab: SLAXXX-M SLAXXX-P SLGXXX-M SSAXXX-P SLGXXX-M SSGXXX-P SLGXXX-M SSGXXX-P SLGXXX-M SSGXXX-P SLCXXML SLLXXXML					- All may be followed by BLK or BLACK	
Assembly, MLPE Frame Attachment Kit, MLPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-xxx-BMB-HV SEG-xxx-BMD-TB SEG-						
Attachment Kit, MLPE Rail Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-xxx BMB-HV, SEG-xxx BMB-HV SEG-xxx BMD-HV & SEG-xxx BMD-HB, where xxx can be 370-425 SEG-xxx-BMD-BG where xxx is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXXX-M SLAXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLCXXX-N SSGXXX-P SLCXXX-N SSGXXX-P SLCXXX-N SSGXXX-P SLCXXX-N SSGXXX-P SLCXXX-N SSGXXX-P SLCXXXNT SLCXXXNT SLCXXXNT SLCXXXNT SLCXXXNL SLCXXXXL SLCXXXNL SLCXXXXL SLCXXXL SLCXXL SLCXXXL SLCXXXL SLCXXXL SLCXXXL SLCXXXL SLCXXXL SLCXXXL SLCXXL SLCXXXL SLCXXL					Renesola:	
Attachment Kit, Smart Clips, Tilt Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-HV, SEG-XXX-BMB-TB SEG-XXX-BMD-HV & SEG-XXX-BMD-HD, where xxx can be 370-425 SEG-XXX-BMD-BG where xxx is 420-435 SIffab: SLAXXX-M SLAXXX-P SSAXXX-P SLGXXX-P SLGXXX-M SSGXXX-P SSGXXX-M SSGXXX-P SILXXXBL SILXXXBL SILXXXML SILXXXNL SILXXXNL SILXXXNL SILXXXNL SILXXXXNL	_				JCXXXM-24/Bb	1
Kits, Adjustable Tile Hook. SEG Solar: SEG-XXX-BMB-TB SEG-XXX-BMD-TB SEG-XXX-BMD-TB SEG-XXX-BMD-TB, where xxx can be 370-425 SEG-XXX-BMD-TB, where xxx is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXXX-P SSAXXX-P SLGXXX-M SSAXXX-P SLGXXX-M SSGXXX-P SLGXXX-P SILXXXBL SILXXXBL SILXXXBL SILXXXML SILXXXML SILXXXML SILXXXNL SILXXXRG SILXXXNL SILXXXRG SILXXXXNL SILXXXRG SILXXXNL SILXXXRG SILXXXNL SILXXXRG SILXXXRG SILXXXXQD					JCXXXM-24/BBh	
SEG-SOLAT: SEG-XXX-BMB-HV, SEG-XXX-BMB-HV SEG-XXX-BMD-HV & SEG-XXX-BMD-HV & SEG-XXX-BMD-TB SEG-XXX-BMD-TB SEG-XXX-BMD-TB, where XXX can be 370-425 SEG-XXX-BTD-BG where XXX is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXXX-M SSAXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SILXXXBL SLLXXXML SLLXXXML SLLXXXML SLLXXXML SLLXXXNL SLLXXXXNL SLLXXXRE SLLXXXXNL	'					
SEG-xxx-BMD-HV & SEG-xxx-BMD-HV & SEG-xxx-BMD-HS, where xxx can be 370-425 SEG-XXX-BTD-BG where xxx is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXX-M SSAXXX-P SLGXXX-M SLGXXX-P SSGXXX-M SLGXXX-P SILXXXBL SILXXXBL SILXXXML SILXXXML SILXXXNI SILXXXXI SILXXXNI SILXXXII SILXXII SILXXIII SILXXIII SILXXIII SILXXIII SILXXIII SILXXIII SILXXII SILXXIII SIL	Mis, rajustusie The Fleek				SEG Solar:	1
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SEG-xxx-BMD-TB, where xxx can be 370-425 SEG-XXX-BTD-BG where xxx is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXXX-P SSAXXX-P SLGXXX-M SLGXXX-P SLGXXX-P SLGXXX-P SLGXXX-P SLIXXXBL SILXXXBL SILXXXBL SILXXXNT SILXXXNT SILXXXNL SILXXXNL SILXXXNL SILXXXNL SILXXXXNL SILXXXNX SILXXXXNX SILXXXNX SILXXXNX SILXXXNN SILXXXXNC SILXXXNN SILXXXXNC					SEG-xxx-BMB-TB	
where xxx can be 370-425 SEG-XXX-BTD-BG where xxx is 420-435 Silfab: SLAXXX-M SLAXXX-P SSAXXX-P SSAXXX-P SLGXXX-P SLGXXX-M SLGXXX-P SLGXXX-M SLGXXX-P SLGXXX-N SLGXXX-P SLGXXX-N SLGXXX-P SLGXXX-N SLGXXX-P SLGXXX-N SLGXXX-P SLGXXX-N SLGXXX-P SLGXXX-N SLGXXX-P SLGXX-P SLGXX-						1
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Silfab: SLAXXX-M SLAXXX-P SSAXXX-P SSAXXX-P SLGXXX-M SLGXXX-P SSGXX-M SSGXXX-P SILXXXBL SILXXXML SILXXXNL SILXXXNL SILXXXNL SILXXXNL SILXXXNL SILXXXNX SILXXXNX SILXXXNX SILXXXNX SILXXXNX SILXXXNU SILXXXND						1
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SLAXXX-P SSAXXX-P SLGXXX-M SLGXXX-P SLGXXX-P SSGXXX-M SSGXX-P SILXXXBL SILXXXML SILXXXNT SILXXXNT SILXXXNL SILXXXNL SILXXXNL SILXXXNL SILXXXNL SILXXXNX SILXXXNX SILXXXNU SILXXXNU SILXXXNU SILXXXHC SILXXXHC SILXXXHN SILXXXHN SILXXXHN SILXXXHN					Silfab:	
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SILXXXNX SILXXXNU SILXXXHC SILXXXHN SILXXXBG SILXXXQD						l
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11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems,	Mounting Devices, C	Clamping Devices and C	Ground Lugs for Use with Photovoltaic Modules a
				SIL-xxxHC+,
				SIL-xxxHM.
				C Francis
				S-Energy: SL65-54BGJ-XXXV
				SL65-54BHJ-XXXV
				3203-340113-7777
				Solaria:
				Solaria PowerXT-XXXR-PX
				Solaria PowerXT-XXXR-BX
				Solaria PowerXT-XXXR-AC
				Solaria PowerXT-XXXR-PM
				Solaria PowerXT-XXXR-PM-AC
				SolarJuice (Solar4America)
				S4AXXX72H5BB,
				S4AXXX72H5BW,
				S4AXXX72M5BB,
				S4AXXX72M5BW,
				where XXX is 375-420.
				S4AXXX60M5BB,
				S4AXXX60M5BW,
				S4AXXX60H5BB,
				S4AXXX60H5BW, where XXX is 320-345.
				S4AXXX-108MH10SB,
				S4AXXX-108MH10SW,
				S4AXXX-108MH10BB,
				S4AXXX-108MH10BW,
				Where XXX is 385-410.
				S4AXXX-108TH10BB
				where XXX is 425 to 440
				S4AXXX-144MH10STT,
				S4AXXX-144MH10BTT,
				where XXX is 530-565.
				S4AXXX-144TH10STT S4AXXX-144TH16STT
				where XXX is 565 to 590
				SolarWorld:
				SWXXX-Mono
				SWXXX-Mono XL
				Suniva:
				MVX-XXX-60-5-701
				MVX-XXX-60-5-7B1
				OPT-XXX-60-4-100
				OPT-XXX-60-4-1B0
				OPT-XXX-60-4-800
				OPT-XXX-60-4-8B0
				Summa acceptant
				Sunpower:
				SPR-EYY-XXX SPR-EYY-XXX
				SPR-XYY-XXX
				SPR-XYY-XXX
				SPR-AXXX-G-AC
				SPR-AXXX
				SPR-AXXX-BLK-G-AC
				SPR-AXXX-BLK
				SPR-MXXX-H-AC
				SPR-MXXX

11/19/24, 4:30 PM	QIMS.⊨359313 - Mounting Systems, Mounting Devices, Clamp ■ ■	Ding Devices and Ground Lugs for Use with Photovoltaic Modules a
		SPR-MXXX-BLK-H-AC SPR-MXXX-BLK
		SI K-WAXA BEK
		SunSpark:
		SST-XXXM3-60
		SST-XXXM3B-60
		SST-XXXM3-72
		SST-XXXM3B-72
		Talesun:
		TP660M-XXX
		TP660P-XXX
		TP672M-XXX
		TP672P-XXX
		Tesla:
		TXXXS
		TXXXH
		Trina:
		TSM-XXXDD05(II)
		TSM-XXXDD05A.05(II)
		TSM-XXXDD05A.08(II)
		TSM-XXXDD05A.082(II)
		TSM-XXXPA05
		TSM-XXXPA05.05
		TSM-XXXPA05.08 TSM-XXXPD05
		TSM-XXXPD03
		TSM-XXXPD05.05
		TSM-XXXPD05.05S
		TSM-XXXPD05.08
		TSM-XXXPD05.082
		TSM-XXXPD05.08D
		TSM-XXXPD05.08S
		TSM-XXXDD05H.05(II)
		TSM-XXXDD06M.05(II)
		TSM-XXXDE15H(II)
		TSM-XXXDE15M(II) TSM-XXXDE06X.05(II)
		TSM-XXXDE09.05
		TSM-XXXDE15V(II)
		TSM-XXXDE19
		TSM-XXXDEG15VC.20(II)
		TSM-XXXDEG18MC.20(II)
		TSM-XXXDEG19C.20
		TSM-XXXDEG21C.20
		TSM-XXXDE09C.05 TSM-XXXDE09C.07
		TSW XXXDLOSC.07
		URECO
		FAMxxxE7G-BB
		FBMxxxMFG-BB
		Vikram Solar:
		Somera VSMHBB.60.XXX.05
		SOMERA VSMH.72.XXX.05
		PREXOS VSMDHT.60.XXX.05 PREXOS VSMDHT.72.XXX.05
		VSUN Solar:
		VSUNXXX-144BMH-DG,
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11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems, Mounting Device	es, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a.
		VSUNXXX-120BMH,
		VSUNXXX-108BMH
		VSUNXXX-132BMH where xxx is 475-520
		Yingli:
		YLXXXA-29b
		YLXXXP-29b
		ZNShine:
		ZXM6-60-XXX/M
		ZXM6-NH120-XXXM, ZXM6-NH144-XXXM
		ZXM7-SH108-XXX/M
		**ZXM7-SHLDD144-XXX/M
		REC Solar, model
		RECxxxAA Pure-R, where
		xxx can be 390-430
		REC Solar, model
		RECxxxNP3, where xxx
		can be 380-410
		Trina Solar, model
		TSM-xxxNE09RC.05,
		where xxx can be 365-430
		Aptos Solar, model
		DNA-108-MF10-xxxW, where
		xxx can be 390-415
		NRTL Listed Module Level Power
		Electronics:
		Rapid Shutdown Devices:
		AP Smart:
		Model RSD-S-PLC
		Celestica International:
		DG-006-F001201x
		DG-006-F001401x
		Delta Electronics:
		GPI00010105
		Ginlong Technologies:
		Solis-RSD-1G
		Solis-MLRSD-R1-1G
		Solis-MLRSD-R2-1G
		SMA:
		RSB-2S-US-10
		Microinverters:
		Enphase:
		M250
		M215 C250
		IQ6-60-2-US
		IQ6-00-2-03
		IQ7-60-2-US
		• • • •

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a...

1/ 13	9/24, 4:30 PM QIMS.E3593 I	s - Mounting Systems	, Mounting Devices, C	ciamping Devices and t	Fround Lugs for Use with Photovoltaic Modules a
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		IQ7-60-B-US
	UR-45 Mounting and Bonding	Υ*	Y – Minimum	Y – Class A with	IQ7PLUS-72-2-US
	System for use with		mechanical load	and without skirt	
	Photovoltaic Modules. All		ratings defined	assembly for Type	IQ7PLUS-72-B-US
			by UL 2703 for	1, Type 2 and Type	IQ8-60
	components are		· ·		IQ8PLUS-72
	interchangeable between the		all modules	29 modules	IQ8A-72
	UR-40 and UR-45 except for		listed		IQ8H-208-72
	the UR-45 specific UR-45 Rail.				IQ8H-240-72
					Optimizers:
					i '
					C Otii
					Generac – Optimizer model S2502
					Lunar Energy – Lunar Optimizer
					SolarEdge:
					P300-5NC4ARS
					P320-5NC4ARS
					P370-5NC4AFS
					P400-5NC4AFS
					P320
					P340
					P370
					P400
					P401
					P405
					P485
					P505
					P730
					P800p
					P850
					P860
					P950
					S440
					S500
					l .
					P1100
					P1101
					Monitoring Devices:
					Tigo:
					Tigo:
					TS4-R-F
					TS4-R-M
					TS4-R-O
					TS4-R-S
					TS4-R-M-DUO
					TS4-R-O-DUO
					TS4-R-S-DUO
					TS4-A-F
					TS4-A-2F
					TS4-A-O
					TS4-A-S
					Philadelphia Solar:
					**PS-M144(HCBF)-XXXW
					PS-M108(HCBF)0XXXW
					1.5 IVITOO(TICDI)OAAAVV
					PS-M108(HC)-XXXW
					PS-M144(HC)-XXXW
					Thornova
					Thornova:
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11/19/24, 4:30 PM	QIMS.E359313	3 - Mounting Systems	, Mounting Devices, 0	Clamping Devices and (Ground Lugs for Use with Photovoltaic I	Modules a
					TS-BB54(XXX)	
					TS-BB60(XXX)	
					**TS- BG54(XXX)	-
					TS-BG60(XXX)	
					**TS-BG72(XXX)	

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a...

	<u> </u>		, , , , , , , , , , , , , , , , , , ,		-	
	MightyMount Comp-S	Υ	N	Y – Class A with		1
		T	IN			
	consisting of the following:			and without skirt		1
	Comp-S Track, Ultra Rail Mid			assembly for Type		
	Clamp, Ultra Rail End Clamp,			1, Type 2 and Type		1
	Wire Management Clips, Ground			29 modules		1
	Lugs, MLPE Rail Attachment Kit					
	and MLPE Frame Attachment Kit.					
	and with the rame rate in the rate.					
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11/19/24, 4:30 PM	QIMS.E359313 - Mountir	ng Systems, Mounting De	vices, Clamping Devices a	and Ground Lugs for Use with Photovoltaic Modules a	3
1	I	1	1		

Mightybacum - Metalai Consisting of the following: Track Short Lag Tail Leg Phined Clamp, Life As I red Clamp, With Assays and Clamp Clamp Muz Use Sal I red Clamp, With Assays and Clamp Clamp Muz Use Sal I red Clamp, With Assays and Clamp Clamp Muz Use Sal I red Clamp, With Assays and Clamp Clamp Muz Use Sal I red Clamp, With Assays and Clamp Clamp Muz Use Sal I red Clamp, With Assays and Clamp Muz Phined Clamp, With Assays and Clamp Muz Phined Sal Assays and Muz Phined Sal Assays		•canang cyclonio	,54114119 25 11000, (Stouria Eago for Ooc With Friotovoltato Modulos C
consisting of the following: Trade, Short Leg. Table Leg. Pemed Chamel Nut, Ulto Rail Mid Camp, Ultra Sail mid Clamp, Wire Management Clas, Ground Lugs, MIER Rail Allachment Kit, and MIPE Frame Attachment Kit, CmmShield. DNA 120 MES XXXX DNA 120 MES XXX DNA 120 MES XXX DNA 120 MES XXX DNA 120 MES XXX DNA 120 M	MightyMount – Metal-T	Υ	N	Y – Class A when	Listed PV Modules, where XXX is the
Track Short Leg Tall Leg Prined Clamp Utra Rail Mid Clamp Utra Rail Pad DNA-120-MR23-00X DNA-140-MR23-00X D					
Channel Nut. Dutra Rail Mid					
Clamp Utto Rail End Clamp Public Solar Clamp Utto Rail End Clamp DN 1-20 ME2 SOX DN 1-20-8F23-XXX DN 1-20-8F23-XXX DN 1-20-8F23-XXX DN 1-20-8F23-XXX DN 1-20-8F23-XXX DN 1-20-8F23-XXX DN 1-20-ME2 XXXX DN 1-20-ME2 XXX DN 1-20-ME2 XX					ec rered.
Wite Management Clips, Ground Lugs, MLPE Rid Hardshment Ric and MLPE Frame Attachment Ric and MLPE Frame Attachment Ric and MLPE Frame Attachment Ric DNA-128 MERS 20000 DNA-144-ME23-20000 DNA-120 ME28-20000 DNA-120 ME28-					Antos Solar
Lugs, MIPE Rail Attachment Kit				11.1 01 UL 2703	· •
and MLPE Frame Attachment Kit, OmniShield. DNA-144-8823-300X DNA-120-MPSE-5000X, DNA-120-MPSE-300X DNA-120-MPSE-5000X, DNA-120-MPSE-300X DNA-120-BPSE-5000X DNA-120-BPSE-5000X DNA-120-BPSE-5000X DNA-120-BPSE-5000X DNA-120-BPSE-5000X BVM6610P-300X BVM6610P-300X BVM6610P-300X BVM6610P-300X BVM6610P-300X BVM7612M-300X BVM6612M-300X BVM7612M-300X BVM6612M-300X BVM6					
OmniShield: DNA-120-MEZ-XXXXV, DNA 144-MEZ-XXXXV DNA 144-MEZ-XXXXV DNA 144-MEZ-XXXXV DNA 144-MEZ-XXXXV DNA 144-MEZ-XXXXV DNA 148-BEZ-XXXV DNA 144-BEZ-XXXV DNA 144-BEZ-XXXV BRVM651DM-XXX BVM651DM-XXX BVM6651DM-XXX BVM6651DM-XXX BVM6651DM-XXX BVM6651DM-XXX BVM6651DM-XXX BVM6651DM-XXX BVM6651DM-XXX BVM6661DM-XXX BVM6661DM-					
DNA-120-M726-XXXVV, DNA-120-M726-XXXVV DNA-120-B726-XXXVV DNA-120-B726-XXXVV DNA-120-B726-XXXVV DNA-144-BF26-XXXVV BVM612P-XXXV BVM612P-XXXV BVM612P-XXXV BVM7612M-XXXXV BVM7612M-XXXXV BVM7612M-XXXXV BVM7612M-XXXV BVM7612M-XXXV BVM7612M-XXXV BVM7612M-XXXV BVM7612M-XXXV BVM7612M-XXXV BVM7612M-XXXV CSRX-XXXV CSRX-XXXXV CSRX-XXXV CSRX-XXXV CSRX-XXXV CSRX-XXXV CSRX-XXXV CSRX-XXXXV CSRX-XXXXX CSRX-XXXXX CSRX-XXXXX CSRX-XXXXX CSRX-XXXXX CSRX-XXXXX CSRX-XXXXX CSRX-XXXXX CSRX-XXXX CSRX-XXX CSRX-XXX CSRX-XXX CSRX-XXX CSRX-XXX CSRX-XXX CSRX-XXX CSRX-XXX CSRX-XX CSRX-X	·				
XXXXV, DNA-144-M725-XXXVV DNA-144-M725-XXXVV DNA-144-M725-XXXVV DNA-144-M725-XXXVV DNA-144-M725-XXXVV DNA-144-M725-XXXVV DNA-144-M725-XXXVV DNA-144-M725-XXXV DNA-144-M7	OmniShield.				l .
DINA 120 BEZS XXXW DINA-144-BFZ6-XXXW Boviet Solar:					DNA-120-MF26-XXXW, DNA-120-MF26-
DNA-144-BEZE-XXXV					XXXW, DNA-144-MF26-XXXW
Boviet Solar: BVM6610P-XXX BVM6612P-XXX BVM662P-XXX BVM662P-XX BVM6					DNA-120-BF26-XXXW
BWM6610P-XXX BWM6610P-XXX BVM6612P-XXX BVM6612P-XXX BVM7612M-XXX.H-H-GB-ZOC Canadian Solar: CS6X-XXX.H-M CS6X-XXX.M-SD CS6X-XXX.P-SD CS6X-XXX					DNA-144-BF26-XXXW
BWM6610P-XXX BWM6610P-XXX BVM6612P-XXX BVM6612P-XXX BVM7612M-XXX.H-H-GB-ZOC Canadian Solar: CS6X-XXX.H-M CS6X-XXX.M-SD CS6X-XXX.P-SD CS6X-XXX					
BVM6612M-XXX BVM6612M-XXX BVM6612M-XXX BVM7612M-XXX-M-GBF-OE Canadian Solar: CS6K-XXX-M-CS6K-XXX-M-SD CS6K-XXX-M-SD CS1K-XXX-M-SD CS1K-XXX-M-					Boviet Solar:
BVM6612P-NOX BVM612P-NOX BVM612M-XXXX BVM7612M-XXXX BVM7612M-XXXX CAnadian Solar: CS6K-XXXX-M CS6K-XXXX-M CS6K-XXXX-M CS6K-XXXX-M CS6F-XXXX-M CS6P-XXXX-M CS6P-XXXX-M CS6P-XXXX-M CS6P-XXXX-M CS6V-XXXX-M CS6V-XXXX-M CS6V-XXXX-M CS6X-XXXX-M CS6X-XXX-M CS6X-XX-M CS6X-XXX-M CS6X-XXX-M CS6X-XXX-M CS6X-XXX-M CS6X-XXX-M CS6X-XXX-M CS6X-XX-XX-M CS6X-XX-XX-M CS6X-XX-XX-M CS6X-XX-XX-M CS6X-XX-XX-M CS6X-XX-XX					BVM6610P-XXX
BWM6612M-XXX.H HC.BF.DG Canadian Solar: C56K-XXX.H HC.BF.DG C56K-XXX.H SD C56W-XXX.M SD C53W-XXX.H SD C53W-XXX.H SD C53W-XXX.H SD C53W-XXX.H SD C53W-XXX.H SD C53W-XXX.H SD C51W-XXX.H SD C51W-XXX.H SD C51W-XXX.H SD C51W-XXX.H SD C51W-XXX.M SD C51W-XXXX.M SD C51W-X					BVM6610M-XXX
BVM7612M-XXXX-H-HC-BF-DG Canadian Solar: CS6K-XXXX-M CS6K-XXXX-M CS6K-XXXX-M CS6K-XXXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS3W-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS3X-XXX-P CS3X-XXX-M CS3U-XXX-M CS1H-XXX-M CS1H-XXX-M CS1H-XXX-M CS1H-XXX-M CS1H-XXX-M CS1-XXX-M CS1-XX-XX-M CS1-XXX-M CS1-XX-M					BVM6612P-XXX
BVM7612M-XXXX-H-HC-BF-DG Canadian Solar: CS6K-XXXX-M CS6K-XXXX-M CS6K-XXXX-M CS6K-XXXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS3W-XXX-P CS6X-XXX-P CS6X-XXX-P CS6X-XXX-P CS3X-XXX-P CS3X-XXX-M CS3U-XXX-M CS1H-XXX-M CS1H-XXX-M CS1H-XXX-M CS1H-XXX-M CS1H-XXX-M CS1-XXX-M CS1-XX-XX-M CS1-XXX-M CS1-XX-M					BVM6612M-XXX
CSGR-XXX-M CSGR-XXX-M CSGR-XXX-M CSGR-XXX-P-SD CSGR-XXX-MS CSGR-XX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XX-MS CSGR-XX					
CSGR-XXX-M CSGR-XXX-M CSGR-XXX-M CSGR-XXX-P-SD CSGR-XXX-MS CSGR-XX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XX-MS CSGR-XXX-MS CSGR-XXX-MS CSGR-XX-MS CSGR-XX					
CS6K-XXX-M-SD CS6K-XXX-P-SD CS6K-XXX-P-SD CS6K-XXX-MS CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS6P-XXX-M CS3W-XXX-M CS3W-XXX-M CS3W-XXX-M CS3W-XXX-M CS3W-XXX-M CS3W-XXX-M CS3U-XXX-M CS3U-XXX-M CS1H-XXX-MS CS1H-XX-MS CS1					Canadian Solar:
C56K-XXX-P-SD C56K-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C57V-XXX-MS C7V-XXX-MS C7V-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX-XXX-XXX-XXX-XXXX-X					CS6K-XXX-M
C56K-XXX-P-SD C56K-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56P-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C56V-XXX-MS C57V-XXX-MS C7V-XXX-MS C7V-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX-XXX C1-XXX-XXX-XXX-XXX-XXX-XXX-XXX-XXXX-X					CS6K-XXX-M-SD
CS6K.XXX.P.SD CS6F-XXX.M CS6F-XXX.M CS6F-XXX.M CS6F-XXX.M CS6F-XXX.M CS6F-XXX.M CS6F-XXX.M CS3W-XXX.M CS1H-XXX.M CS1H-XXX.M CS1H-XXX.M CS1H-XXX.M CS1H-XXX.M CS1H-XXX.M CS1H-XXX.M CS1H-XXX.M CS3W-XXXMB-AG CC56R-XXXMB-AG CC56R-XXXXMB-AG CC56R-XXXXMB-AG CC56R-XXXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R-XXXB-AG CC56R					
CS6R-XXX-MS CS6P-XXX-P CS6P-XXX-P CS6P-XXX-P CS6V-XXX-P CS6V-XXX-P CS6X-XXX-P CS6X-XXX-P CS3W-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS1H-XXX-MS-AB CS1H-XX					
CS6P-XXX-M CS6P-XXX-P CS6P-XXX-P CS6V-XXX-P CS6V-XXX-P CS6V-XXX-P CS6V-XXX-P CS3K-XXX-M CS3W-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS7W-XXXMB-AG CS7W-XXXXMB-AG CS7W-XXXMB-AG CS7W-XXXXMB-AG CS7W-XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					l .
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CS6P-XXX-P-SD CS6V-XXX-M CS3W-XXX-P CS6X-XXX-P CS6X-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXXM-AB CS3W-XXXMB-AG CS6L-54TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS7W-xxxMS CS3W-xxxMP CS3W-xxxMP CS3W-xxxMP CS3W-xxxMP CS3W-xxxMP CC53W-xxxMP CC53W-xxxXP CC					l .
CS6V-XXX-M CS3W-XXX-P CS6X-XXX-P CS3K-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS3W-xxxMS CS1H-XXX-MS CS3W-xxxMS CS1H-XXX-MS C					
CS3W-XXX-P CS6V-XXX-P CS6K-XXX-P CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS6R-XXXMB-AG CS6R-XXXMB-AG CS6R-XXXMB-AG CS6R-XXXMB-AG CS6R-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxMS CS3W-xxxMS CS3W-xxxMS CS3W-xxxMS CCSMC-XXMS-HL CS3W-xxxMS CS1H-XXX-MS CS1					
CS6V-XXX-P CSSK-XXX-P CSSK-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS3U-XXX-MS CS1H-XXX-MS CS6R-XXXM-MS-MS CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-MS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXHC11-06, CTXXHC11-06, CTM10XXXHC11-06 CTM10XXXXHC11-06					
CS6X-XXX-P CS3K-XXX-MS CS3L-XXX-MS CS3L-XXX-MS CS1L-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS6L-S4TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG					
CS3K-XXX-P CS3K-XXX-MS CS3U-XXX-P CS3L-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS3W-XXXMB-AG CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS3W-XXXMS CS3W-XXXMS CS3W-XXXMS CS3W-XXXMS CC3W-XXXMS CC3W-XXXMS-AC CMSMC1L-XXX CHSMG612M-XXX CHSMG612M/RU-XXX CHSM					
CS3L-XXX-MS CS3L-XXX-MS CS1L-XXX-MS CS1H-XXX-MS CS6L-54TM-XXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CH5M6612M-XXX CH5M6612M-XXX CH5M6612M-MV-XXX CH5M6412M-XXX CH5M6					
CS3U-XXX-MS CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS1Y-XXX-MS CS61-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS3Y-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxXMS CS3W-xxxXMS CC5AT-54TM-XXX CS3W-xxxXMS CS3W-xxxXMS-AG CS6R-XXXXMS-HL CS3W-xxxXMS CC5AW-xxxXP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTMM6612M-XXX CHSM6612M-XXX CHSM6612M-XXX CHSM6612M-XXX CHSM6612M-XXX CHSM6612M-MXXX CHSM6612M-MSXX					l .
CS3U-XXX-P CS1K-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS3N-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS3W-XXXMB-AG CS3W-XXXMB-AG CS3W-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M/BU-XXX CHSM6612M/BU-XXX CHSM6612M/BU-XXX					
CS1H-XXX-MS CS1H-XXX-MS CS1H-XXX-MS CS3N-XXX-MS CS3N-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxXP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CTM10XXXXHC11-06 CTM10XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX					CS3U-XXX-MS
CS1H-XXX-MS CS1H-XXX-MS CS3N-XXX-MS CS1Y-XXX-MS CS1Y-XXX-MS CS6L-5-4TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M/BU-XXX CHSM6612M(BU-XXX CHSM6612M(BU-XXX CHSM6612M(BU-XXX					CS3U-XXX-P
CS1H-XXX-MS-AB CS3N-XXX-MS CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M/BU-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					CS1K-XXX-MS
CS3N-XXX-MS CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXXHC11-06 CTM10XXXXCHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX CHSM6612M(BL)-XXX CHSM6612M(BL)-XXX					CS1H-XXX-MS
CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMS-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					CS1H-XXX-MS-AB
CS1Y-XXX-MS CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6W-XXXMS-AG CS6W-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					CS3N-XXX-MS
CS6.1-54TM-XXXH CS3W-XXXMB-AG CS3Y-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M/BL)-XXX **CHSM72M-HC-XXX (Astro 4)					
CS3W-XXXMB-AG CS6W-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CS3Y-XXXMB-AG CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CS6W-XXXMB-AG CS6R-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 CTM10XXXHC11-06 CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CSGR-XXXMS-HL CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/BL)-XXX **CHSM72M-HC-XXX (Astro 4)					
CS3W-xxxMS CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CS3W-xxxP, where xxx is 385 to 450 CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M/BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CertainTeed - CTXXXHC11-06, CTXXXHC11-06 CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					
CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					C3377-XXXF, WHELE XXX IS 303 (U 43U
CTXXXHC11-06, CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				CortainTood
CTXXXHC11-06, CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CTM10XXXHC11-06 Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				· •
Chint Solar: CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					
CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					CIMIUXXXHCTI-06
CHSM6612M-XXX CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)					Chint Solar
CHSM6612M/HV-XXX CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
CHSM6612M(BL)-XXX **CHSM72M-HC-XXX (Astro 4)	1				
**CHSM72M-HC-XXX (Astro 4)	1				
	1				
**CHSM72M-HC-XXX (Astro 5)					
	I	l	l		**CHSM72M-HC-XXX (Astro 5)

Crossroads Solar		
Crossroads Solar xxx		
Dehui Solar		
DH-M760B-XXXW		
DH-M760W-XXXW		
DH-M772W-XXXW		
DH-M760F-XXXW		
DH-M772F-XXXW		
ET Solar		
ET-P660XXXBE		
ET-P660XXXWB		
ET-P660XXXWW		
ET-P660XXXWWG P660XXXWB/WW		
P660XXXWWG		
M660XXXBB	I	
M660XXXWW	I	
Freedom Forever Procurement	I	
FF-MP-BBB-xxx, where xxx is 365 to 410.		
Hansol Technics		
HAXXXAA-NNEAC		
where XXX is 420 to 440		
Hanwha/Q Cells		
Q.PEAK BLK-G3.1-XXX		
Q.PEAK G3.1-XXX		
Q.PLUS BFR-G3.1-XXX		
B.LINE PLUS BFR-G4.1-XXX		
B.LINE PRO BFR-G4.1-XXX		
Q.BASE GY-XXX		
Q.PEAK BFR-G4-XXX Q.PEAK BFR-G4.1-XXX		
Q.PEAK BLK-G4.1-XXX		
Q.PEAK BLK-G4.1/TAA-XXX		
Q.PEAK G4-XXX		
Q.PEAK G4.1-XXX		
Q.PEAK G4.1/MAX-XXX		
Q.PEAK G4.1/TAA-XXX		
Q.PLUS BFR-G4-XXX		
Q.PLUS BFR-G4.1-XXX		
Q.PLUS BFR-G4.1/TAA-XXX		
Q.PLUS G4-XXX		
Q.PLUS GY-XXX		
Q.PLUS BFR-GY-XXX		
Q.PRO BFR-G4-XXX		
Q.PRO BFR-G4.1-XXX	I	
Q.PRO BFR-G4.3-XXX	I	
Q.PRO BFR-GY-XXX	I	
Q.PRO BLK-GY-XXX	I	
Q.PRO G4-XXX	I	
Q.PRO GY-XXX	I	
Q.PRO GY/SC-XXX	I	
Q.PEAK DUO-G6+-XXX	I	
Q.PEAK DUO-BLK-G6+-XXX Q.PEAK DUO-G6-XXX	I	
Q.PEAK DUO-G6-XXX Q.PEAK DUO-BLK-G6-XXX	I	
Q.PEAK DUO-61K-G6-XXX	I	
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19/24, 4:30 PM	QIMS.E359313 - Mounting Systems, Mounting	g Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a
1	I I	Q.PEAK DUO-G8-XXX
		Q.PEAK DUO-BLK-G8-XXX
		Q.PLUS L-G4-XXX
		Q.PLUS L-G4.1-XXX
		Q.PLUS L-G4.2-XXX
		Q.PEAK L-G4.1-XXX
		Q.PEAK L-G4.2-XXX
		Q.PLUS DUO-L-G5-XXX
		Q.PLUS DUO-L-G5.1-XXX
		Q.PLUS DUO-L-G5.2-XXX
		Q.PLUS DUO-L-G5.3-XXX
		Q.PEAK DUO-L-G5.2-XXX
		Q.PEAK DUO-L-G5.3-XXX
		Q.PEAK DUO-L-G7-XXX
		Q.PEAK DUO-L-G7.1-XXX
		Q.PEAK DUO-L-G7.2-XXX
		Q.PEAK DUO-L-G7.3-XXX
		Q.PEAK DUO-L-G6-XXX
		Q.PEAK DUO-L-G6.2-XXX
		Q.PEAK DUO-L-G6.3-XXX Q.PEAK DUO-L-G8-XXX
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		Q.PEAK DUO-L-G8.1-XXX Q.PEAK DUO-G5-XXX
		Q.PEAK DUO-G3-XXX Q.PEAK DUO-BLK-G5-XXX
		Q.PLUS DUO-G5-XXX
		Q.PEAK DUO-G7-XXX
		Q.PEAK DUO-BLK-G7-XXX
		Q.PEAK DUO-G7.2-XXX
		Q.PEAK DUO BLK-G6+/AC-XXX
		Q.PEAK DUO-ML-G9-XXX
		Q.PEAK DUO BLK-G5/TS-XXX
		Q.PEAK DUO G6+/TS-XXX
		Q.PEAK DUO BLK-G6+/TS-XXX
		Q.PEAK DUO XL-G9.3-XXX
		Q.PEAK DUO-L-G8.2-XXX
		Q.PEAK DUO-L-G8.3-XXX
		Q.PEAK DUO-G5/SC-XXX
		Q.PEAK DUO-BLK-G5/SC-XXX
		Q.PEAK DUO-G6+/SC-XXX
		Q.PEAK DUO-BLK-G6+/SC-XXX
		Q.PEAK DUO-BLK-ML-G9-XXX
		Q.PEAK DUO-G5/TS-XXX
		Q.PEAK DUO-G6/TS-XXX
		Q.PEAK DUO BLK-G6/TS-XXX
		Q.PEAK DUO XL-G9.2-XXX
		Q.PEAK DUO BLK-G9-XXX
		Q.PEAK DUO ML-G9+-XXX
		Q.PEAK DUO BLK-G9+-XXX
		Q.PEAK DUO BLK ML-G9+-XXX
		Q.PEAK DUO XL-G10.2-XXX
		Q.PEAK DUO XL-G10.3-XXX
		Q.PEAK DUO XL-G10.d-XXX
		Q.PEAK DUO L-G8.3/BGT-XXX
		Q.PEAK DUO BLK ML-G10+-XXX
		Q.PEAK DUO BLK ML-G10-XXX
		Q.PEAK DUO BLK ML-G10.a+-XXX
		Q.PEAK DUO BLK ML-G10.a-XXX
		Q.PEAK DUO XL-G9.3/BFG-XXX
		Q.PEAK DUO XL-G10.3/BFG-XXX
		Q.PEAK DUO XL-G10.c-XXX
1	1 1	Q.PEAK DUO L-G8.3/BFG-XXX
		Q.TRON_XL-G2.3/BFG-XXX

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Sys	tems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules	s a
1		Q.PEAK DUO ML-G10-XXX	
		Q.PEAK DUO ML-G10+-XXX	
		Q.PEAK DUO ML-G10.a+-XXX	
		Q.PEAK DUO ML-G10.a-XXX	
		Q.PEAK DUO BLK ML-G10.a+/TS-XXX,	
		Q.PEAK DUO G10-XXX,	
		Q.PEAK DUO BLK-G10-XXX,	
		Q.PEAK DUO G10+-XXX,	
		Q.PEAK DUO BLK-G10+-XXX	
		Q.TRON-G1+ XXX	
		Q.TRON BLK-G1+ XXX	
		Q.PEAK DUO BLK G10+/AC XXX	
		Q.PEAK DUO BLK G10+/HL XXX	
		Q.PEAK DUO XL-G11.3 XXX	
		Q.PEAK DUO XL-G11.3 BFG XXX	
		Q.Tron BLK M-G2+ XXX,	
		Q.Tron M-G2+ XXX,	
		Q.PEAK DUO BLK ML-G10+/t XXX	
		Q.PEAK DUO XL-G10.d/BFG	
		Q.TRON BLK M-G2+/AC XXX	
		HT-SAAE:	
		HT60-166M-XXX where XXX is 340-390;	
		HT60-182M-XXX	
		Hanwha Solar One: HSL60P6-PB-2-XXXQ	
		HSL60P6-PB-4-XXXQ	
		Heliene: 60M-XXX	
		60P-XXX	
		72M-XXX	
		72IVI-XXX 72P-XXX	
		Runergy:	
		**HY-DH108N8	
		HY-DH108P8-XXX(Y)	
		**HY-DH144N8	
		**HY-DH144P8	
		Hyundai:	
		HiS-MXXXRG	
		HiS-SXXXRG	
	I	HiS-SXXXRW	
		HiA-SXXXMS	
		HiS-MXXXMG	
		HiS-SXXXMG	
		HiD-SXXXRG	
	I	HiS-SXXXXY	
	I	HiS-SXXXYI	
	I	HiS-SxxxYH	
	I	HiN-SxxxXG(BK)	
		All may be followed by (BK)	
		JA Solar:	
	I	JAM6-60-XXX/SI	
	I	JAP6-60-XXX/3BB	
	I	JAM60S09-XXX/PR	
	I	JAM60S10-XXX/MR	
	I	JAM60S10-XXX/PR	
	I	JAM60S12-XXX/PR	
https://ig.ulprocpester.			20/42

Ground Lugs for Use with Photovoltaic Module	rices, clamping bevices and		9/24, 4:30 PM
JAM60S17-XXX/MR			
JAP72S01-XXX/SC			
JAM72S09-XXX/PR			
JAM72S10-XXX/MR			
JAM72S10-XXX/PR			
JAM72S12-XXX/PR			
JAP6(k)-72-XXX/4BB			
JAM54S30-XXX/MR where XXX is 400-410			
JAM54S31-XXX/MR			
JAM72D30-XXX/MB			
JAM72D10-XXX/MB			
Jinko Solar			
JKMXXXM-60			
JKMXXXP-60			
JKMXXXP-60-J4			
JKMXXXI -00-54			
JKMXXXP-60B-J4		1	
JKMXXXPP-60		1	
JKMXXXPP-60-V		1	
JKMXXXM-60HL		1	
JKMXXXM-60L			
JKMXXXM-60HBL		1	
JKMXXXM-72			
JKMXXXP-72			
JKMXXXP-72-V			
JKMXXXPP-72			
JKMXXXPP-72-V			
JKMSXXXP-72			
JKMXXXM-72HL-V			
JKMXXXM-72HL-TV			
JKMXXXM-72L-V			
JKMXXXM-72HBL			
JKMXXXM-6TL3-B			
JKMXXXM-6RL3-B			
JKMXXXM-7RL3-V			
JKMXXXM-7RL3-TV			
JKMXXXM-72HL4-V			
JKMXXXM-72HL4-TV			
JKMXXXN-54HL4-B			
KB Solar LLC			
MODULE-KBS-375-MONC		1	
MODULE-KBS-375-MONO-BF		1	
MODULE-KBS-450-MONC			
MODULE-KBS-450-MONO-BF			
Kyocera			
KUXXX-6YYY KUXXX-8YYY			
. ~			
LG LCVVVN1C AF			
LGXXXN1C-A5			
LGXXXN1K-A5			
LGXXXQ1C-A5		1	
LGXXXQ1K-A5			
LGXXXS1C-A5		1	
LGXXXN2C-B3		1	
LGXXXN2W-B3		1	
LGXXXN1C-G4			

LGXXXS1C-G4 LGXXXN2C-G4 LGXXXN2K-G4 LGXXXN2W-G4 LGXXXS2C-G4 LGXXXS2W-G4 LGXXXN1C-V5 LGXXXN1W-V5 LGXXXN2T-V5 LGXXXN2T-J5 LGXXXN1T-V5 LGXXXA1C-V5 LGXXXM1C-L5 LGXXXN1C-N5 LGXXXM1K-L5 LGXXXN1K-L5 LGXXXN1C-A6 LGXXXQ1C-A6 LGXXXM1K-A6 LGXXXA1C-A6 LGXXXN1K-A6 LGXXXN1W-A6 LGXXXQ1K-A6 LGXXXM1C-A6 LGXXXQAK-A6 LGXXXN2W-E6 LGXXXN1K-E6 LGXXXQAC-A6 LGXXXN1K-B6 LGXXXN2T-E6

Longi:

LR6-60-XXXM

LGXXXN3K-V6

LR6-60BK-XXXM LR6-60HV-XXXM

LR6-60PB-XXXM

LR6-60PE-XXXM

LR6-60PH-XXXM

LR6-60HPB-XXXM

LR6-60HPH-XXXM

LR4-72HPH-XXXM

LR4-60HIB-XXXM

LR4-60HIH-XXXM

LR4-60HPB-XXXM

LR4-60HPH-XXXM LR6-60HIB-XXXM

LR6-60HIH-XXXM

LR5-54HPB-XXXM

LR5-54HABB-XXXM

Maxeon Solar Technologies, LTD.

SPR-MAX3-XXX-BLK-R where xxx is 395-

420

Meyer Burger:

Meyer Burger Black ** Meyer Burger White **

Mission Solar:

MSEXXXSO5T

MSEXXXSO5K

MSEXXXSQ5T

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a...

1/19/24, 4.30 PW QIMS.E339313		,g _ 0		Journa Lugs for Ose with Photovoltaic Modules a
TopRail Mounting System	Υ	N	Y – Class A for	MSEXXXSQ5K
The state of the s			Type 1, Type 2, and	MSEXXXMM4J
USL/CNL - Photovoltaic			Type 29 modules.	MSEXXXMM6J
Mounting System: Model			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	MSEXXXSO6W
"TopRail" Mounting and Bonding				MSEXXXSO4J
Systems for use with				MSEXXXSO6J
Photovoltaic Modules, consisting				MSEXXXSQ6S
				MSEXXXSQ4S
of the following components:				MSEXXXSR8K
UR-40/45/60 Rail, Ultra Rail End				MSEXXXSR8T
Clamp, Ultra Rail Mid Clamp, RL				MSEXXXSR9S
RL Universal Link Assembly,				MSE60AXXX
Ground Lug, and MLPE Frame				MSEXXXTS60
Attachment Kit.				MSEXXXSX5K
				MSEXXXSX5T
				MSEXXXSX6S
				MSEXXXSX6W
				TXI6-XXX120BB
				MSExxxSX5R, where xxx is 375 to 390
				TXI10-XXX108BB
				MSEXXXHT0B
				where XXX is 390 to 410
				MSEXXXSX9R
				where XXX is 380 to 400
				Mitrex Inc:
				Mxxx-I3H
				Next Energy Alliance:
				USNEA-XXXM3-60
				USNEA-XXXM3B-60
				USNEA-XXXM3-72
				USNEA-XXXM3B-72
				Panasonic:
				VBHNXXXKA01
				VBHNXXXKA02
				VBHNXXXSA16
				VBHNXXXXATO VBHNXXXKA03
				VBHNXXXKA03 VBHNXXXKA04
				VBHNXXXSA17
				VBHNXXXSA18
				VBHNXXXSA17E
				VBHXXXRA18N
				VBHXXXRA03K
				EVPVXXX(K)
				EVPKXXXPK
				EVPVXXXHK
				EVPVXXXHK2 where XXX is 420 to 430
				Phono Solar:
				PSXXXM-20/U
				PSXXXMH-20/U
				PSxxxM8GF-24/TH where xxx is 520 to 550,
				PSxxxM8GFH-24/TH, where xxx is 520 to
				550,
				PSxxxM8GF-18/VH, where xxx is 390 to 410,
				PSxxxM8GFH-18/VH, where xxx is 390 to
				410,
				PSxxxM6-24/TH, where xxx is 510 to 550.
				1 SAMATIO 2-1/111, WHELE AAA 13 3 TO tO 330.
				REC:
1				NEC.

RECXXXPE	I	I	1
RECXXXPE-BLK			
RECXXXTP			
RECXXXTP-BLK			
RECXXXTP IQ			
RECXXXTP2			
RECXXXTP2-BLK			
RECXXXNP			
RECXXXTP2M			
RECXXXTP72			
RECXXXPE72			
RECXXXPE72XV			
RECXXXTP2M 72			
RECXXXTP2M 72 BLK			
RECXXXTP2M 72 BLK2			
RECXXXTP2SM 72			
RECXXXTP2SM 72 BLK			
RECXXXTP2SM 72 BLK2	l	I	
RECXXXAA	l	I	
RECXXXTP3	l	I	
RECXXXTP3M	l	I	
RECXXXTP4			
RECXXXAA Pure			
RECXXXNP2			
RECxxxAA PURE 2			
RECxxxAA PURE-RX			
- All may be followed by BLK or BLACK			
Renesola			
JCXXXM-24/Bb			
JCXXXM-24/BBh			
SEG Solar:			
SEG-XXX-BMB-HV,			
SEG-xxx-BMB-TB			
SEG-xxx-BMD-HV &			
SEG-xxx-BMD-TB,			
where xxx can be 370-425 SEG-XXX-BTD-BG where xxx is 420-435			
Silfab			
SLAXXX-M	l	I	
SLAXXX-M	l	I	
SSAXXX-M	l	I	
SSAXXX-P	l	I	
SSAXXX-P SLGXXX-M	l	I	
	l	I	
SLGXXX-P	l	I	
SSGXXX-M	l	I	
SSGXXX-P	l	I	
SILXXXBL	l	I	
SILXXXML	l	I	
SILXXXNT	l	I	
SILXXXHL	l	I	
SILXXXNL	l	I	
SILXXXBK	l	I	
SILXXXNX	l	I	
SILXXXNU	l	I	
SILXXXHC	l	I	
SILXXXHN	l	I	
CILVVVDC			
SILXXXBG			

11/19/24, 4:30 PM	QIMS.E359313 -	Mounting Systems,	, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a
	1		SILXXXQM
			SIL-xxxHC+,
			SIL-xxxHM.
			S-Energy:
			SL65-54BGJ-XXXV
			SL65-54BHJ-XXXV
			SL65-54TEP-XXXV
			Solaria:
			Solaria PowerXT-XXXR-PX
			Solaria PowerXT-XXXR-BX
			Solaria PowerXT-XXXR-AC
			Solaria PowerXT-XXXR-PM
			Solaria PowerXT-XXXR-PM-AC
			SolarWorld:
			SWXXX-Mono
			SWXXX-Mono XL
			SolarJuice (Solar4America)
			S4AXXX72H5BB,
			S4AXXX72H3BB, S4AXXX72H5BW,
			S4AXXX72H3BW, S4AXXX72M5BB,
			S4AXXX72M5BW,
			where XXX is 375-420.
			S4AXXX60M5BB,
			S4AXXX60M5BW,
			S4AXXX60H5BB,
			S4AXXX60H5BW,
			where XXX is 320-345
			S4AXXX-108MH10SB,
			S4AXXX-108MH10SW,
			S4AXXX-108MH10BB,
			S4AXXX-108MH10BW,
			Where XXX is 385-410.
			S4AXXX-108TH10BB, where XXX is 425 to 440.
			l I
			S4AXXX-144MH10STT,
			S4AXXX-144MH10BTT, where XXX is 530-565.
			S4AXXX-144TH10STT, S4AXXX-144TH16STT,
			where XXX is 565 to 590.
			Suniva:
			MVX-XXX-60-5-701
			MVX-XXX-60-5-701 MVX-XXX-60-5-7B1
			OPT-XXX-60-4-100
			OPT-XXX-60-4-100 OPT-XXX-60-4-1B0
			OPT-XXX-60-4-180 OPT-XXX-60-4-800
			OPT-XXX-60-4-8B0
			Sman
			Sunpower: SPR-EYY-XXX
	1		
	1		SPR-EYY-XXX
			SPR-XYY-XXX
			SPR-XYY-XXX
			SPR-AXXX-G-AC
			SPR-AXXX
			SPR-AXXX-BLK-G-AC
	1		SPR-AXXX-BLK

SPR-MXXX-H-AC	I	l	
SPR-MXXX			
SPR-MXXX-BLK-H-AC			
SPR-MXXX-BLK			
SunSpark			
SST-XXXM3-60			
SST-XXXM3B-60			
SST-XXXM3-72			
SST-XXXM3B-72			
Talesun			
TP660M-XXX			
TP660P-XXX			
TP672M-XXX			
TP672P-XXX			
Tesla			
TXXXS	I	l	
TXXXH			
Trina			
TSM-XXXDD05(II)			
TSM-XXXDD05A.05(II)			
TSM-XXXDD05A.08(II)			
TSM-XXXDD05A.082(II) TSM-XXXPA05			
TSM-XXXFA05.05			
TSM-XXXPA05.08			
TSM-XXXPD05			
TSM-XXXPD05.002			
TSM-XXXI D03.002			
TSM-XXXPD05.05			
TSM-XXXI D03.035			
TSM-XXXPD05.082			
TSM-XXXI D03.002			
TSM-XXXPD05.08S			
TSM-XXXDD05H.05(II)			
TSM-XXXDD03H.05(II)			
TSM-XXXDE05Mi.05(II)			
TSM-XXXDE15M(II)			
TSM-XXXDE06X.05(II)			
TSM-XXXDE09.05			
TSM-XXXDE15V(II)			
TSM-XXXDE19			
TSM-XXXDEG15VC.20(II)			
TSM-XXXDEG18MC.20(II)			
TSM-XXXDEG19C.20			
TSM-XXXDEG21C.20			
TSM-XXXDE09C.05			
TSM-XXXDE09C.07			
URECC			
FAMxxxE7G-BB	I	l	
FBMxxxMFG-BB			
Vikram Solar			
Somera VSMHBB.60.XXX.05	I	l	
SOMERA VSMH.72.XXX.05	I	l	
PREXOS VSMDHT.60.XXX.05	I		
PREXOS VSMDHT.72.XXX.05	I	l	
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1/19/24, 4:30 PM	QIMS.E359313 - Mounting S	ystems, Mounting Devices, C	amping Devices and Ground Lugs for Use with Photovoltaic Modules a
			VSUN Solar: VSUNXXX-144BMH-DG, VSUNXXX-120BMH, VSUNXXX-108BMH
			Yingli:
			YLXXXA-29b YLXXXP-29b
			ZNShine: ZXM6-60-XXX/M
			ZXM6-NH120-XXXM, ZXM6-NH144-XXXM ZXM7-SH108-XXX/M **ZXM7-SHLDD144-XXX/M
			REC Solar, model RECxxxAA Pure-R, where xxx can be 390-430
			REC Solar, model RECxxxNP3, where xxx can be 380-410
			Trina Solar, model TSM-xxxNE09RC.05, where xxx can be 365-430
			Aptos Solar, model DNA-108-MF10-xxxW, where xxx can be 390-415
			NRTL Listed Module Level Power Electronics:
			Rapid Shutdown Devices:
			AP Smart: Model RSD-S-PLC
			Celestica International: DG-006-F001201x DG-006-F001401x
			Delta Electronics: GPI00010105
			Ginlong Technologies: Solis-RSD-1G Solis-MLRSD-R1-1G Solis-MLRSD-R2-1G
			SMA: RSB-2S-US-10
			Microinverters:
			Enphase:
			M250 M215 C250
			IQ6-60-2-US IQ6PLUS-72-2-US

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems	, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a…
1	I	IQ7-60-2-US
		IQ7-60-B-US
		IQ7PLUS-72-2-US
		IQ7PLUS-72-B-US
		I I
		IQ8-60
		IQ8PLUS-72
		IQ8A-72
		IQ8H-208-72
		IQ8H-240-72
		Optimizers:
		Generac – Optimizer model S2502
		Lunar Energy – Lunar Optimizer
		SolarEdge:
		P300-5NC4ARS
		P320-5NC4ARS
		P370-5NC4AFS
		P400-5NC4AFS
		P320
		P340
		P370
		P400
		P401
		P405
		P485
		P505
		P730
		Р800р
		P850
		P860
		P950
		S440
		S500
		P1100
		P1101
		Monitoring Devices:
		Tigo:
	I	TS4-R-F
	I	TS4-R-M
	I	TS4-R-O
	I	TS4-R-S
	I	TS4-R-M-DUO
	I	
	I	TS4-R-O-DUO
		TS4-R-S-DUO TS4-A-F
	I	TS4-A-2F
	I	TS4-A-O
		TS4-A-S
		BUILLI CI
	I	Philadelphia Solar:
		**PS-M144(HCBF)-XXXW PS-M108(HCBF)0XXXW
		DC 14400416) 200714
		PS-M108(HC)-XXXW PS-M144(HC)-XXXW
https://ig.ulprospector.co	m/en/profile?e=122600	28/42

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems	s, Mounting Devices, 0	Clamping Devices and (Ground Lugs for Use with Ph	otovoltaic Modules a
					Thornova: TS-BB54(XXX) TS-BB60(XXX) **TS- BG54(XXX) TS-BG60(XXX) **TS-BG72(XXX)
https://ia.ulprospector.com	/en/profile2e=122600				29/42

11/19/24, 4:30 PM	QIMS.E359313 - Mounti	ng Systems, Mounting [Devices, Clamping D	evices and Ground Lug	gs for Use with Photovoltaic Modules a.
		I		1	

, , ,	0/24, 4.00 T W QIWO.E0000 TO	, mounting eyeterne	, mounting Dovidoo, c	Jamping Borioco and	Stouria Lags for Osc with a motovoltale modules a
	RL Universal Mounting System	Υ*	N	Y – Class A with	Aptos Solar:
	The Offiversal Woulding System	'	IN .	and without skirt	DNA-120-MF23-XXX
	USL - Mounting and Bonding			assembly for Type	DNA-120-BF23-XXX
	Systems for use with			1, Type 2 and Type	DNA-144-MF23-XXX
	Photovoltaic Modules, consisting			29 modules	DNA-144-BF23-XXX
	of the following components:				DNA-120-MF26-XXXW, DNA-120-MF26-
	Mount Assembly, Ridge Mount				XXXW, DNA-144-MF26-XXXW
	Assembly, Umbrella Flashing				DNA-120-BF26-XXXW
	Assembly, SpeedSeal Track				DNA-144-BF26-XXXW
	Assembly, SpeedSeal Decktrack				DNA-120-BF10-xxx, where xxx is 435 to
	Assembly, Link Assembly, Wire				455,
	Management Clips, Ground				DNA-108-BF10-xxx, where xxx is 385 to 410
	Lugs, MLPE Rail Attachment Kit				BIVE 100 BI TO XXX, WHERE XXX IS 303 to 110
	and MLPE Frame Attachment Kit.				Boviet Solar:
	and MEPE Frame Attachment Kit.				
					BVM7612M-XXX-H-HC-BF-DG
					Canadian Solar:
					CS6K-XXX-M
					CS6K-XXX-M-SD
					CS6K-XXX-P
					CS6K-XXX-P-SD
					CS6K-XXX-MS
					CS3K-XXX-P
					CS3W-XXX-P
					CS3N-XXX-MS
					CS3K-XXX-MS
					CS3U-XXX-MS
					CS3U-XXX-P
					CS1K-XXX-MS
					CS1H-XXX-MS
					CS1H-XXX-MS-AB
					CS1Y-XXX-MS
					CS6.1-54TM-XXXH
					CS3W-XXXMB-AG
					CS3Y-XXXMB-AG
					CS6W-XXXMB-AG
					CS6R-XXXMS-HL
					CS3W-xxxMS
					CS3W-xxxP, where xxx is 385 to 450
					CertainTeed
					CTXXXHC11-06,
					CTXXXHC11-06,
					CTXXXHC11-06
					Chint Solar:
					CHSM6612M-XXX
					CHSM6612M/HV-XXX
					CHSM6612M(BL)-XXX
					**CHSM72M-HC-XXX (Astro 4)
					**CHSM72M-HC-XXX (Astro 5)
					Creamanda Calairi
					Crossroads Solar:
					Crossroads Solar xxx
					Dehui Solar:
					DH-M760B-XXXW
					DH-M760W-XXXW
					DH-M772W-XXXW
					DH-M760F-XXXW
					DH-M772F-XXXW
	•				

Processor Forestaments	11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems, Mounting Devices, Cl	amping Devices and Ground Lugs for Use with Photovoltaic Modules a
Harmsdi Technics HAXXXA-ANIBAD where XXX is 420 x 440 Harmshard Callic GERAX DUG GERX QERAX DUG GERX QERX QERAX DUG GERX QERX QERX QERX DUG GERX QERX QERX QERX QERX QERX QERX QERX Q			Freedom Forever Procurement:
HADOXA-NINEAD where XXX is 42 to 440 Harmwing/Q Cells OPHAR DIJO-SE-XXX OPHAR DIJO-			FF-MP-BBB-xxx, where xxx is 365 to 410.
### Where XXX is 420 to 440 HamshayQ Calls. QPAX DUO-GS-XXX QPAX DUO BLX GG-XXX QPAX DUO BLX GG-XXXX QPAX DUO BLX GG-XXXX QPAX DUO BLX GG-XXXX QPAX DUO BLX GG-XXXX QPAX DUO BLX			Hansol Technics
Hamwan/C Cells O PHAR DUG-G-SXXX Q PHAR DUG-M-CG-SXXX Q PHAR DUG-BL-XGL-CG-XGX Q PHAR DUG-BL-XGL-CG-XGX Q PHAR DUG-BL-XGL-CG-XGX Q PHAR DUG-BL-XGL-CG-XGX Q PHAR DUG-M-CG-SXXX Q PHAR DUG-BL-XGL-CG-XGX Q PHAR DUG-M-CG-SXXX Q PHAR DUG-M-CG-SXXX Q PHAR DUG BL-M-G-XGXX Q PHAR DUG BL-M-G-XGXX Q PHAR DUG BL-M-G-SXXX Q PHAR DUG BL-M-G-TXXXX Q PHAR DUG BL-M-G-G-XXXX Q PHAR DUG BL-M-			HAXXXAA-NNEA0
Q.P.R.A. DUO-BLK-65-XXX Q.PLAS DUO-BLK-65-XXX Q.PLAS DUO-BLK-67-XXX Q.PLAS DUO-BLK-67-XXX Q.PLAS DUO-BLK-67-XXX Q.PLAS DUO-BLK-67-XXX Q.PLAS DUO-BLK-67-XXX Q.PLAS DUO-BLK-66-XXX Q.PLAS DUO-BLK-66-XXX Q.PLAS DUO-BLK-66-XXX Q.PLAS DUO-BLK-66-XXX Q.PLAS DUO-BLK-66-XXX Q.PLAS DUO-BLK-66-XXX Q.PLAS DUO-BLK-68-XXX Q.PLAS DUO-BLK-68-X			where XXX is 420 to 440
Q PEAK DUG-BIK-GS-XXX Q PEAK DUG-GS-XXX Q PEAK DUG-SG-XXX Q PEAK DUG-XG-GG-XXX Q PEAK DUG-XG-XG-XX			Hanwha/Q Cells:
Q PEAK DUG-BIK-GS-XXX Q PEAK DUG-GS-XXX Q PEAK DUG-SG-XXX Q PEAK DUG-XG-GG-XXX Q PEAK DUG-XG-XG-XX			
OPEAN DUPO BILK 67-XXX OPEAN DUPO-BILK 67-XXX OPEAN DUPO-GILK 68-XXX OPEAN DUPO-GILK 68-XX			Q.PEAK DUO-BLK-G5-XXX
Q.PEAK DUIO-GE-20XX Q.PEA			Q.PLUS DUO-G5-XXX
Q-PEAK DUO-G-2 - XXXX Q-PEAK DUO-G-6 - XXX Q-PEAK DUO BLK-G6 + XXX Q-PEAK DUO BLK-G6 - XXX Q-PEAK DUO BLK-G6 - XXX Q-PEAK DUO BLK-G10 - XXX Q-PEAK DUO BLK-G11 -			Q.PEAK DUO-G7-XXX
Q. PEAK DUO. GE 1- XXX Q. PEAK DUO. GE 6- XXX Q. PEAK DUO. SE 66- XXX Q. PEAK DUO. SE 65- XXX Q. PEAK DUO. SE 65- XXX Q. PEAK DUO. SE 65- XXX Q. PEAK DUO. GE 1- XXX Q. PEAK DUO. SE 65- XXX Q. PEAK DUO. SE 610- XXX Q. PEAK DUO. SE 611- XXX Q. PEAK DUO. SE 61			Q.PEAK DUO-BLK-G7-XXX
Q. PEAK DIJD BLK G6 - XXX Q. PEAK DIJD BLX Q. PEAK DIJD BLX - G3 - XXX Q. PEAK DIJD BLX - G1 - XXX Q. PEAK DIJD XXX Q. PEAK DIJD BLX - G1 - XXX Q. PEAK DIJD BLX			
Q. PEAK DUD-GG.XXX Q. PEAK DUD-GG.XXX Q. PEAK DUD-GB.X-CGXXX Q. PEAK DUD-GB.X-XXX Q. PEAK DUD-G.X-XXX Q. PEAK DUD-G.X-XXX Q. PEAK DUD-G.X-XXX Q. PEAK DUD-G.X-Q.X-XXX Q. PEAK DUD-G.X-XXX Q. PEAK DUD-G.X-G.X-XXX Q. PEAK DUD-G.X-G.X-XXX Q. PEAK DUD-G.X-G.X-XXX Q. PEAK DUD-M.X-G.G.X-XXX Q. PEAK DUD-M.			
QPEAN DUD SHE, 65 WX QPEAN DUD GES WXX QPEAN DUD GES WES WXX QPEAN DUD GES WXX QPEAN DUS GES WXX QPEA			
QPEAX DUG-GLK-GS-XXX QPEAX DUG-GLK-XXX QPEAX DUG-GLX-XXX QPEAX DUG-GLX-GLX-XXX QPEAX DUG-GLX-XXX QPEAX DUG-GLX-GLX-XXX QPEAX DUG-GLX-CXXX QPEAX DUG-GLX-CXX QPEAX DUG-GLX-CXX QPEAX DUG-GLX-XXX QPEAX DUG-GLX-GLX-XXX QPEAX DUG-GLX-XXX QREAX DUG-GLX-XXX QREAX DUG-CLX-XXX QREAX D			
Q PEAK DUO SB. CGS - XXX Q PEAK DUO SB. K GG - XXX Q PEAK DUO M. GG - XXX Q PEAK DUO M. GG - XXX Q PEAK DUO M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K M. GG - XXX Q PEAK DUO SB. K GG - XXX Q PEAK DUO SB. K GG - XXX Q PEAK DUO M. GG - XXX Q PEAK DUO SB. GG - XXX			
Q. PEAK DUO-BLK-GB-XXX Q. PEAK DUO BLK GB XXX Q. PEAK DUO-BLK-ML-G9-XXX Q. PEAK DUO-BLK-ML-G9-XXX Q. PEAK DUO-BLK-ML-G9-XXX Q. PEAK DUO BLK GB XXX Q. PEAK DUO BLK GB XXX Q. PEAK DUO BLK GB XXX Q. PEAK DUO BLK ML-G9-XXX Q. PEAK DUO BLK ML-G10-XXX Q. PEAK DUO L-G10-XXX Q. PEAK DUO L-G10-XXX Q. PEAK DUO L-G10-XXX Q. PEAK DUO L-G8-3/RGT-XXX Q. PEAK DUO L-G8-3/RGT-XXX Q. PEAK DUO BLK ML-G10-XXX Q. PEAK DUO BLK ML-G10-XXX Q. PEAK DUO L-G8-3/RG-XXX Q. PEAK DUO XL-G10-XXX Q. PEAK DUO XL-G11-XXX Q. PEAK DUO XL-G10-XXX Q. PEAK DUO			
Q. PEAK DUO. G.B. XXX Q. PEAK DUO. BLKGG-/AC-XXX Q. PEAK DUO. BLKGG-/XXX Q. PEAK DUO. XLGT0.2-XXX Q. PEAK DUO. XLGT0.2-XXX Q. PEAK DUO. XLGT0.2-XXX Q. PEAK DUO. XLGT0.2-XXX Q. PEAK DUO. SLGT0.3-XXX Q. PEAK DUO. XLGT0.3-XXX Q. PEAK DUO. SLX-GT0.3-XXX Q. PEAK DUO. SLX-GT0			
Q. PEAK DUOBLKGB-XXX Q. PEAK DUOBLKGB-XXX Q. PEAK DUOBLKML-G9-XXX Q. PEAK DUOBLKML-G9-XXX Q. PEAK DUOBLKML-G9-XXX Q. PEAK DUOBLKG9-XXX Q. PEAK DUOBLKG10-XXX Q. PEAK DUOBLKG10-XXX Q. PEAK DUOBLKG10-XXX Q. PEAK DUOBLKG10-XXX Q. PEAK DUOBLKML-G10-XXX Q. PEAK DUOBLKG10-XXX Q. PEAK DUOBLKG10-XXX Q. PEAK DUOC-G10-XXX Q. PEAK			
QPEAK DUD-BLK-G6-J-XC-XXX QPEAK DUD-BLK-MI-G9-XXX 365-385 QPEAK DUD-BLK-MI-G9-XXX 365-385 QPEAK DUD-BLK-MI-G9-XXX QPEAK DUD BLK-G9-XXX QPEAK DUD SLC-G10-XXX QPEAK DUD SLC-G10-XXX QPEAK DUD XL-G10-XXX QPEAK DUD XL-G10-XXX QPEAK DUD BLK MI-G10-XXX QPEAK DUD XL-G93-J8FG-XXX QPEAK DUD XL-G93-J8FG-XXX QPEAK DUD XL-G93-J8FG-XXX QPEAK DUD XL-G10-XXX QPEAK DUD MI-G10-XXX QPEAK DUD MI-G11-XXX QPEAK DUD MI-G10-XXX QPEAK DUD MI-G11-XXX QPEAK DUD MI-G10-XXX QPEAK DUD MI-G11-XXX QPEAK DUD MI-G10-XXX QPEAK DUD MI-G10-XXX QPEAK DUD MI-G11-XXX Q			
QPEAK DUO-ML-G9-XXX QPEAK DUO XL-G9-XXX QPEAK DUO XL-G9-XXX QPEAK DUO XL-G9-XXX QPEAK DUO ML-G9-XXX QPEAK DUO ML-G9-XXX QPEAK DUO ML-G9-XXX QPEAK DUO ML-G9-XXX QPEAK DUO SL-G10-XXX QPEAK DUO XL-G10-XXX QPEAK DUO XL-G10-XXX QPEAK DUO XL-G10-XXX QPEAK DUO XL-G10-XXX QPEAK DUO BLK ML-G10-XXX QPEAK DUO XL-G9-XXX QPEAK DUO XL-G10-XXX QPEAK DUO XL-G10-XXX QPEAK DUO XL-G10-XXX QPEAK DUO ML-G10-XXX QPEAK DUO BLS ML-X10-XXX QPEAK DUO BLS-X10-XXX QPEAK DUO SLS-X10-XXX			
Q. PEAK DUO BLKG9-XXX 365-385 Q. PEAK DUO BLK-G9-XXX Q. PEAK DUO SLK-G10.3-XXX Q. PEAK DUO XL-G10.3-XXX Q. PEAK DUO SLK-G10.3-XXX Q. PEAK DUO SLK-G10.3-XXX Q. PEAK DUO BLK ML-G10-XXX Q. PEAK DUO BLK ML-G10-XXX Q. PEAK DUO BLK ML-G10.3-XXX Q. PEAK DUO SLK-G10.3-XXX Q. PEAK DUO XL-G3.9FG-XXX Q. PEAK DUO XL-G3.9FG-XXX Q. PEAK DUO XL-G3.9FG-XXX Q. PEAK DUO XL-G3.9FG-XXX Q. PEAK DUO XL-G10.3-XXX Q. PEAK DUO XL-G11.3-XXX Q. PEAK DUO XL-G10.4/PEAX Q. PEAK D			
Q.PEAK DUO BLK-G9-2XXX Q.PEAK DUO BLK-G9-XXX Q.PEAK DUO BLK MG-G9-XXX Q.PEAK DUO SL-G10-2XXX Q.PEAK DUO XL-G10-2XXX Q.PEAK DUO XL-G10-3XXX Q.PEAK DUO SL-G10-3XXX Q.PEAK DUO BLK MG-G10-XXX Q.PEAK DUO BLK MG-G10-XXX Q.PEAK DUO BLK MG-G10-XXX Q.PEAK DUO BLK MG-G10-XXX Q.PEAK DUO SL-G10-XXX Q.PEAK DUO XL-G10-XXX Q.PEAK DUO MG-G10-XXX Q.PEAK DUO G1-XXX Q.PEAK DUO X1-G11-XXX Q.PEAK DUO G1-XXX Q.PEAK DUO X1-G11-XXX Q.PEAK DUO X1-G10-XXX			
Q.PEAK DUO BLK-G9-XXX Q.PEAK DUO BLK-G9+XXX Q.PEAK DUO BLK-G9+XXX Q.PEAK DUO BLK-G9+XXX Q.PEAK DUO SLG-G10.2-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO SLG-G10.4-XXX Q.PEAK DUO SLG-G10.4-XXX Q.PEAK DUO SLG-G10.3-XXX Q.PEAK DUO SLK ML-G10-XXX Q.PEAK DUO SLK ML-G10-XXX Q.PEAK DUO SLK ML-G10.3-XXX Q.PEAK DUO SLK ML-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO SLK-G10-XXX Q.PEAK DUO SLK G10-YHL XXX Q.PEAK DUO SLK G10-YHL XXX Q.PEAK DUO SLK G11-3 XXX Q.PEAK DUO XL-G11-3 SFG XXX Q.PEAK DUO SLK-G11-3 SFG XXX Q.PEAK DUO SLK-G11-3 SFG XXX Q.PEAK DUO SLK G10-YHL XXX Q.PEAK DUO SLK G11-3 XXX Q.PEAK DUO SLK G10-YHL XXX Q.PEAK DUO SLK G11-3 XXX Q.PEAK DUO SLK G10-YHL XXX Q.PEAK DUO SLK G11-3 SFG XXX Q.PEAK DUO SLK			
Q.PEAK DUO BIK.M-G9+-XXX Q.PEAK DUO BIK.M-G9+-XXX Q.PEAK DUO XIG10.3-XXX Q.PEAK DUO XIG10.3-XXX Q.PEAK DUO XIG10.3-XXX Q.PEAK DUO XIG10.3-XXX Q.PEAK DUO BIK.MIG10XXX Q.PEAK DUO SIK.MIG10XXX Q.PEAK DUO XIG10.3-XXX Q.PEAK DUO MIG10XXX Q.PEAK DUO GIOXXX Q.PEAK DUO BIKG10XXX Q.PEAK DUO BIKG10XXX Q.PEAK DUO BIKG10XXX Q.PEAK DUO BIKG10XXX Q.PEAK DUO BIKG11XXX Q.PEAK DUO BIKG10XXX Q.PEAK DUO BIK.			
Q.PEAK DUO BLK ML-G9+-XXX Q.PEAK DUO XL-G10.2-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO BLK ML-G10XXX Q.PEAK DUO BLK ML-G10XXX Q.PEAK DUO BLK ML-G10XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO XL-G9.3/BFG-XXX Q.PEAK DUO XL-G9.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.5-XXX Q.PEAK DUO XL-G10.5-XXX Q.PEAK DUO XL-G10.5-XXX Q.PEAK DUO ML-G10XXX Q.PEAK DUO G10XXX Q.PEAK DUO BLK-G10XXX Q.PEAK DUO BLK G10/AC XXX			Q.PEAK DUO ML-G9+-XXX
Q.PEAK DUO XL-G10.2-XXX Q.PEAK DUO XL-G10.2-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO L-G8.3/BGT-XXX Q.PEAK DUO BLK ML-G10+-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10-XXX Q.PEAK DUO XL-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO G10-XXX Q.PEAK DUO G10-XX Q.PEAK DUO G10-XX Q.PEAK DUO G10-			Q.PEAK DUO BLK-G9+-XXX
Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO L-G83/BGT-XXX Q.PEAK DUO L-G83/BGT-XXX Q.PEAK DUO BLK ML-G10+XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO SL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.6-XXX Q.PEAK DUO XL-G10.6-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.3-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.TTON M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO BLK ML-G10-/t XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.TTON M-G2+ XXX, Q.PEAK DUO BLK ML-G10-/t XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.TTON M-G2+ XXX, Q.PEAK DUO BLK ML-G10-/t XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.TTON M-G2+ XXX, Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.TTON M-G2+ XXX, Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.PEAK DUO SLC-G11.3 BFG XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.TTON M-G2+ XXX, Q.PEAK DUO SLC-G11.3 BFG XXX			Q.PEAK DUO BLK ML-G9+-XXX
Q.PEAK DUO XL-G10.d-XXX Q.PEAK DUO L-G8.3/PGT-XXXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10.a-XXX Q.PEAK DUO BLK ML-G10.a-XXX Q.PEAK DUO XL-G10.3/PGT-XXX Q.PEAK DUO XL-G10.3/PGT-XXX Q.PEAK DUO XL-G10.3/PGT-XXX Q.PEAK DUO L-G8.3/PGT-XXX Q.PEAK DUO L-G8.3/PGT-XXX Q.PEAK DUO L-G8.3/PGT-XXX Q.PEAK DUO L-G8.3/PGT-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO SLC-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO BLK ML-G10-YH XXX Q.PEAK DUO BLK ML-G10-YH XXX Q.PEAK DUO BLK ML-G10-YH XXX Q.PEAK DUO SLC-G10-XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO SLC-G10-YH XXX Q.PEAK DUO XL-G10.0/BFG			Q.PEAK DUO XL-G10.2-XXX
Q.PEAK DUO L-G8.3/BGT-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10-XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO BLK ML-G10.3-XXX Q.PEAK DUO SL.G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.6-XXX Q.PEAK DUO XL-G10.6-XXX Q.PEAK DUO ML-G10.3-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.3-XXX Q.PEAK DUO ML-G10.3-XXX Q.PEAK DUO G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO SILG-G11-XXX Q.PEAK DUO SILG-G11-XXX Q.PEAK DUO SILG-G11-XXX Q.PEAK DUO XL-G11.3 XXX			
Q.PEAK DUO BLK MIG10+XXX Q.PEAK DUO BLK MIG10-XXX Q.PEAK DUO BLK MIG10-XXX Q.PEAK DUO BLK MIG10-3+XXX Q.PEAK DUO BLK MIG10-3-XXX Q.PEAK DUO XL-G10-3/BFG-XXX Q.PEAK DUO XL-G10-XXX Q.PEAK DUO XL-G10-XXX Q.PEAK DUO XL-G10-XXX Q.PEAK DUO L-G8.3/BFG-XXX Q.PEAK DUO MIG10-XXX Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX Q.PEAK DUO G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO G10-XXX			
Q.PEAK DUO BLK ML-G10.+XXX Q.PEAK DUO BLK ML-G10.a+-XXX Q.PEAK DUO BLK ML-G10.aXXX Q.PEAK DUO XL-G9.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10XXX Q.PEAK DUO XL-G10XXX Q.PEAK DUO ML-G10XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10XXX Q.PEAK DUO ML-G10XXX Q.PEAK DUO ML-G10XXX Q.PEAK DUO ML-G10XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-XXX Q.PEAK DUO BLK-XXX Q.PEAK DUO BLK-XXX Q.PEAK DUO BLK-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G11.3 XXX Q.PEAK DUO BLK-G11.3 XXX Q.PEAK DUO BLK-G11.3 XXX Q.PEAK DUO SLC-G11.3 XXX Q.PEAK DUO SLC-G11.3 XXX Q.PEAK DUO BLK MC-G11.3 XXX Q.PEAK DUO BLK MC-G11.3 XXX Q.PEAK DUO BLK MC-G1-XXX Q.PEAK DUO BLK MC-G10-XXX			
Q.PEAK DUO BLK ML-G10.a-xXX Q.PEAK DUO SL.G9.3/BFG-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.3-XXX Q.PEAK DUO XL-G10.c-XXX Q.PEAK DUO L-G8.3/BFG-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO SLG11.3 XXX Q.PEAK DUO SLG11.3 XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO SLK-G10-XXX			
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Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO XL-G10XXX Q.PEAK DUO XL-G10XXX Q.PEAK DUO L-G8.3/BFG-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO ML-G10.a-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10-XXX Q.TRON-G1+ XXX Q.TRON-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/AL XXX Q.PEAK DUO XL-G11.3 BYX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.TON M-G2+ XXX, Q.TON M-G2+ XXX, Q.PEAK DUO BLK M-G10+/t XXX Q.PEAK DUO BLK M-G2+ XXX, Q.TON M-G2+ XXX, Q.TON M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO BLK ML-G10-/t XXX			
Q.PEAK DUO XL-G10.3/BFG-XXX Q.PEAK DUO L-G8.3/BFG-XXX Q.PEAK DUO ML-G10.c-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO SLC-G11-3 XXX Q.PEAK DUO XL-G11-3 SFG XXX Q.PEAK DUO XL-G11-3 BFG XXX Q.PEAK DUO XL-G11-3 BFG XXX Q.PEAK DUO SLC-G11-3 BFG XXX Q.PEAK DUO SLC-G10-3 BFG			
Q.PEAK DUO XL-G10.c-XXX Q.PEAK DUO L-G8.3/BFG-XXX Q.TRON_XL-G2.3/BFG-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10+-XXX Q.PEAK DUO BLK-G10+-XXX Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+-XXX Q.TRON-G1+-XXX Q.PEAK DUO BLK-G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.TTON BLK M-G2+-XXX, Q.TTON M-G2+-XXX, Q.TTON M-G2+-XXX, Q.PEAK DUO BLK ML-G10-/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO L-G8.3/BFG-XXX Q.TRON_XL-G2.3/BFG-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10+XXX Q.PEAK DUO BLK-G10+XXX Q.TRON-G1+ XXX Q.TRON-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.TGN BLK M-G2+ XXX, Q.TGN M-G2+ XXX, Q.TGN M-G2+ XXX, Q.TGN M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO BLK ML-G10-/t XXX			l l
Q.TRON_XL-G2.3/BFG-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.TRON BLK M-G2+ XXX, Q.TRON M-G2+ XXX, Q.TRON M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO BLK ML-G10-/t XXX			· · · · · · · · · · · · · · · · · · ·
Q.PEAK DUO ML-G10-XXX Q.PEAK DUO ML-G10+XXX Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10+XXX Q.PEAK DUO BLK-G10+XXX Q.TRON-G1+XXX Q.TRON BLK-G1+XXX Q.TRON BLK-G1+XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10-/AC XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.TON BLK M-G2+ XXX, Q.TON BLK M-G2+ XXX, Q.TON M-G2+ XXX, Q.PEAK DUO BLK ML-G10-/t XXX Q.PEAK DUO BLK ML-G10-/t XXX			
Q.PEAK DUO ML-G10.a+-XXX Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO BLK-G10+-XXX, Q.PEAK DUO BLK-G10+-XXX Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			Q.PEAK DUO ML-G10-XXX
Q.PEAK DUO ML-G10.a-XXX, Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO G10+-XXX, Q.PEAK DUO BLK-G10+-XXX Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO G10-XXX, Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO G10+-XXX, Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO BLK-G10-XXX, Q.PEAK DUO G10+-XXX, Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO G10+-XXX, Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO BLK-G10+-XXX Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG	1		
Q.TRON-G1+ XXX Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.TRON BLK-G1+ XXX Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG	- 1		l i
Q.PEAK DUO BLK G10+/AC XXX Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO BLK G10+/HL XXX Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO XL-G11.3 XXX Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			I I
Q.PEAK DUO XL-G11.3 BFG XXX Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG	1		
Q.Tron BLK M-G2+ XXX, Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			I I
Q.Tron M-G2+ XXX, Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			· · · · · · · · · · · · · · · · · · ·
Q.PEAK DUO BLK ML-G10+/t XXX Q.PEAK DUO XL-G10.d/BFG			
Q.PEAK DUO XL-G10.d/BFG			
	1.00		

/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems	s, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a
		Q .TRON BLK M-G2+/AC XXX
		HT-SAAE:
		HT60-166M-XXX where XXX is 340-390;
		HT60-182M-XXX Where XXX is 340-390,
		H100-102IVI-AAA
		Helioner
		Heliene:
		60M-XXX
		60P-XXX
		72M-XXX
		72P-XXX
		Runergy:
		HY-DH108N8-XXX
		HY-DH108P8-XXX(Y)
		HY-DH144N8-XXX
		HY-DH144P8-XXX
		Hyundai:
		HiA-SXXXMS
		HiS-SXXXXY
		HiS-SXXXYI
		HiS-SxxxYH
		HiN-SxxxXG(BK)
		All may be followed by (BK)
		JA Solar:
		JAM60S09-XXX/PR
		JAM72S09-XXX/PR
		JAM60S10-XXX/MR
		JAM72S10-XXX/MR
		JAM60S10-XXX/PR
		JAM72S10-XXX/PR
		JAM60S12-XXX/PR
		JAM72S12-XXX/PR
		JAM60S17-XXX/MR
		JAM54S30-XXX/MR where XXX is 400-410,
		JAM54S31-XXX/MR
		JAM72D30-XXX/MB
		JAM72D10-XXX/MB
		Jinko Solar:
		JKMXXXM-60
		JKMXXXP-60
	l	JKMXXXP-60-J4
		JKMXXXP-60-V
		JKMXXXP-60B-J4
		JKMXXXPP-60
		JKMXXXPP-60-V
		JKMXXXM-60HL
		JKMXXXM-60L
		JKMXXXM-60HBL
		JKMXXXM-72
	l	JKMXXXP-72
		JKMXXXP-72-V
		JKMXXXPP-72
		JKMXXXPP-72-V
		JKMSXXXP-72
	l	JKMXXXM-72HL-V
		JKMXXXM-72HL-TV
		JKMXXXM-72L-V
I	 	

11/19/24, 4:30 PM	QIMS.E359313 - Mounting Systems,	Mounting Devices, Clamping Devices and	Ground Lugs for Use with Photovoltaic Modules a
		I	JKMXXXM-72HBL
			JKMXXXM-6TL3-B
			JKMXXXM-6RL3-B
			JKMXXXM-7RL3-V
			JKMXXXM-7RL3-TV
			JKMXXXM-72HL4-V
			JKMXXXM-72HL4-TV
			JKMXXXN-54HL4-B
			KB Solar LLC:
			MODULE-KBS-375-MONO
			MODULE-KBS-375-MONO-BF
			MODULE-KBS-450-MONO
			MODULE-KBS-450-MONO-BF
			LG:
			LGXXXN1C-A5
			LGXXXN1K-A5
			LGXXXQ1C-A5
			LGXXXQ1K-A5
			LGXXXS1C-A5
			LGXXXN2C-B3
			LGXXXN2W-B3
			LGXXXN1C-G4
			LGXXXN1K-G4
			LGXXXS1C-G4
			LGXXXN2C-G4
			LGXXXN2K-G4
			LGXXXN2W-G4
			LGXXXS2C-G4
			LGXXXS2W-G4
			LGXXXN1C-V5
			LGXXXN1W-V5
			LGXXXN1W-V3
			LGXXXN2T-J5
			LGXXXN1T-V5
			LGXXXA1C-V5
			LGXXXM1C-L5
			LGXXXN1C-L5 LGXXXN1C-N5
			LGXXXN1C-N3 LGXXXN1C-A6
			LGXXXQ1C-A6
			LGXXXM1K-A6
			LGXXXA1C-A6
			LGXXXATC-A6 LGXXXN1K-A6
			LGXXXN1W-A6
			LGXXXQ1K-A6
			LGXXXQ1K-A6 LGXXXM1C-A6
			LGXXXQAK-A6
			LGXXXQAK-A6 LGXXXN2W-E6
			LGXXXN2W-E6 LGXXXN1K-E6
			LGXXXVIK-E0 LGXXXQAC-A6
			LGXXXN1K-B6
			LGXXXN2T-E6
			LGXXXN3K-V6
			Longia
		I	Longi:
		I	LRG-60-XXXM
			LR6-60BK-XXXM
			LR6-60HV-XXXM
			LR6-60PB-XXXM
			LR6-60PE-XXXM
			LR6-60PH-XXXM
https://ig.ulprospector.c		•	3/1/2

1/19/24, 4:30 PM	as.Esses is meaning systems, mounting be	vices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a LR6-60HPB-XXXM
		LR6-60HPH-XXXM
		LR4-72HPH-XXXM
		LR4-60HIB-XXXM
		LR4-60HIH-XXXM
		LR6-60HIB-XXXM
		LR4-60HPB-XXXM
		LR4-60HPH-XXXM
		LR6-60HIH-XXXM
		LR5-54HPB-XXXM
		LR5-54HABB-XXXM
		Maxeon Solar Technologies, LTD.
		SPR-MAX3-XXX-BLK-R where xxx is 395-
		420
		Meyer Burger:
		**Meyer Burger Black
		**Meyer Burger White
		Mission Solar:
		MSEXXXSO5T
		MSEXXXSO5K
		MSEXXXSQ5T
		MSEXXXSQ5K
		MSEXXXMM4J
		MSEXXXMM6J
		MSEXXXSO6W
		MSEXXXSO4J
		MSEXXXSO6J
		MSEXXXSOGS MSEXXXSQ6S
		I I
		MSEXXXSQ4S
		MSEXXXSR8K
		MSEXXXSR8T
		MSEXXXSR9S
		MSE60AXXX
		MSEXXXSX5T MSEXXXSX5K
		MSEXXXSX6W
		MSEXXXSX6S
		TXI6-XXX120BB
		MSExxxSX5R, where xxx is 375 to 390
		TXI10-XXX108BB
		MSEXXXHT0B
		where XXX is 390 to 410
		MSEXXXSX9R
		where XXX is 380 to 400
		Mitrex Inc:
		Mxxx-I3H
		Next Energy Alliance:
		USNEA-XXXM3-60
		USNEA-XXXM3B-60
		USNEA-XXXM3-72
		USNEA-XXXM3B-72
		Panasonic:
		VBHNXXXKA03
		VBHNXXXKA04
		VBHNXXXSA17
		VBHNXXXSA18
		VBHNXXXSA16 VBHNXXXSA17E

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a...

VBHXXXRA3K EPYXXXKI EPYXXXXKI EVYXXXXH EVYXXXXH EVYXXXXHX EVYXXXXHX EVYXXXXHX EVYXXXXHX EVYXXXXHX EVYXXXXHX EVYXXXXHX EVXXXM EXAMPLE AND PSXXXMM-20/U PSXXXMM-20/	19/24, 4.30 PW	winds.E333313 - Mounting Sys	 es and Ground Lugs for Ose with Photovoltaic Modules a
EVPVXXXIV EVPVXXXH EVPVXXXHK EVPVXXXHK EVPVXXXHX EVPVXXXHIX EVPVXXXHIX EVPVXXXHIX EVPVXXXHIX EVPVXXXHIX EVPVXXXHIX EVPVXXXHIX EVXIVX EV		l	VBHXXXRA18N
EVPVXXXH EVPVXXXHK EVPVXXXH EVPVXXXH EVPVXXXH EVPVXXXH EVPVXXXH EVPVXXXH PSXXMMSGF-24/TH where xxx is 520 to 550, PSXXMMGF-24/TH where xxx is 520 to 550, PSXXMMGFH-24/TH where xxx is 520 to 550, PSXXMMGFH-18/VH, where xxx is 390 to 410, PSXXMMGFH-18/VH, where xxx is 390 to 410, PSXXMMGFH-18/VH, where xxx is 510 to 550. RC: RECX RECX RECX RECX RECX RECX RECX RECX			VBHXXXRA03K
EVPVXXXPK EVPVXXXHK EVPVXXXHK EVPVXXXHK EVPVXXXXHX Phono Solar: PSXXXMR-20/U PSXXXMH-20/U PSXXXMH-20/U PSXXXMH-20/U PSXXXMH-20/U PSXXXMBF2-4/TH where xxx is 520 to 550, PSxxxM8F2-4/TH, where xxx is 520 to 550, PSxxxM8F3-18/VH, where xxx is 390 to 410, PSxxxM6F-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 510 to 550. REC: RECXXXTP2 RECXXXTP2BA RECXXXTP2BA RECXXXTP2BA RECXXXTP2M7 2 RECXXXTP2M7 2 BLK RECXXXTP2M7 72 BLK RECXXXTP2M7 72 BLK RECXXXTP2SM 72 RECXXXTP2SM 72 RECXXXTP2SM 72 BLK RECXXXAA			EVPVXXX(K)
EVPVXXXHK2 where XXX is 420 to 430 Phono Solar: PSXXXM-20/U PSXXXMH-20/U PSXXXMH-20/U PSXXXMH-20/II PSXXXMH-24/TH where xxx is 520 to 550, PSXXMBGF-18/VH, where xxx is 520 to 550, PSXXMBGF-18/VH, where xxx is 390 to 410 PSXXMBGF-18/VH, where xxx is 390 to 410, QSXXMBGF-18/VH, where			EVPVXXXH
EVPVXXXHX2 where XXX is 420 to 430 Phono Solar: PSXXXM-20/U PSXXXMH-20/U PSXXXMH20/U PSXXXMBGF-24/TH where xxx is 520 to 550, PSxxxM8GF-24/TH, where xxx is 520 to 550, PSxxxM8GF-18/VH, where xxx is 390 to 410, PSxxxM8GF-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 510 to 550. REC: RECXXTP2-BLK RECXXXTP2-BLK RECXXXTP2-BLK RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP3SM 72 BLK RECXXXTP3M RECXXXXAA RECXXXTP3M RECXXXXAA RECXXXXPP RECXXXXAA RECXXXXPP RECXXXXPP RECXXXXAA RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXAA PURE 2 RECXXXAA PURE RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV;			EVPVXXXPK
EVPVXXXHX2 where XXX is 420 to 430 Phono Solar: PSXXXM-20/U PSXXXMH-20/U PSXXXMH20/U PSXXXMBGF-24/TH where xxx is 520 to 550, PSxxxM8GF-24/TH, where xxx is 520 to 550, PSxxxM8GF-18/VH, where xxx is 390 to 410, PSxxxM8GF-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 510 to 550. REC: RECXXTP2-BLK RECXXXTP2-BLK RECXXXTP2-BLK RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP3SM 72 BLK RECXXXTP3M RECXXXXAA RECXXXTP3M RECXXXXAA RECXXXXPP RECXXXXAA RECXXXXPP RECXXXXPP RECXXXXAA RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXPP RECXXXXAA PURE 2 RECXXXAA PURE RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV;			EVPVXXXHK
Phono Solar: PSXXXM-20/U PSXXXMH-20/U PSXXXMH-20/U PSXXXMH-20/U PSXXXMBGF-24/TH where xxx is 520 to 550, PSxxxMBGF-24/TH, where xxx is 520 to 550, PSxxxMBGF-18/VH, where xxx is 390 to 410, PSxxxMBGF-18/VH, where xxx is 390 to 410, PSxxxMBGFH-18/VH, where xxx is 390 to 410, PSxxxMG-24/TH, where xxx is 510 to 550. REC: REC: REC: REC: REC: REC: REC: REC			
PSXXXM-20/U PSXXXMBGF-24/TH where xxx is 520 to 550, PSxxxMBGF-24/TH, where xxx is 520 to 550, PSxxxMBGFH-24/TH, where xxx is 520 to 550, PSxxxMBGFH-18/VH, where xxx is 390 to 410, PSxxxMBGFH-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 390 to 550. REC: RECXXTP2-BLK RECXXXTP2-BLK RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXTP2M 72 BLK RECXXTP2			
PSXXXM-20/U PSXXXMBGF-24/TH where xxx is 520 to 550, PSxxxMBGF-24/TH, where xxx is 520 to 550, PSxxxMBGFH-24/TH, where xxx is 520 to 550, PSxxxMBGFH-18/VH, where xxx is 390 to 410, PSxxxMBGFH-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 390 to 550. REC: RECXXTP2-BLK RECXXXTP2-BLK RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXTP2M 72 BLK RECXXTP2			Phono Solar:
PSXXXMH-20/U PSxxxM8GF-24/TH where xxx is 520 to 550, PSxxxM8GFH-24/TH, where xxx is 520 to 550, PSxxxM8GFH-18/VH, where xxx is 390 to 410, PSxxxM8GFH-18/VH, where xxx is 510 to 550. REC: RECXXXTP2 RECXXXTP2M RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK2 RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 BLK2 RECXXXTP3M 72 BLK2 RECXXXXP2 RECXXXXP4 RECXXXXP4 RECXXXXP4 RECXXXXP4 RECXXXAP RECXXXXP4 RECXXXAP URE 2 RECXXXAP URE RE RECXXXAP URE RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
PSxxxM8GF-24/TH where xxx is 520 to 550, PSxxxM8GFH-24/TH, where xxx is 520 to 550, PSxxxM8GFH-24/TH, where xxx is 390 to 410, PSxxxM8GFH-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 510 to 550. REC: RECXXXTP2 RECXXXTP2 RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK2 RECXXXTP2M 72 BLK2 RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 BLK2 RECXXXTP3SM 72 BLK2 RECXXXTP3SM 72 BLK2 RECXXXXTP3M RECXXXTP3M RECXXXXTP3M RECXXXXTP3M RECXXXXTP3M RECXXXXTP3M RECXXXXTP4 RECXXXXAP RECXXXXP4 RECXXXXAP RECXXXXAP RECXXXXAP RECXXXXAP RECXXXXAP RECXXXXAP RECXXXXAP RECXXXXAP RECXXXAA PURE 2 RECXXXAA PURE 2 RECXXXAA PURE RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
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550, PSXXXM8GF-18/VH, where xxx is 390 to 410, PSXXXM8GFH-18/VH, where xxx is 390 to 410, 410, PSXXXM6-24/TH, where xxx is 510 to 550. REC: RECXXXTP2 RECXXXTP2-BLK RECXXXTP2M72 RECXXXTP2M72 RECXXXTP2M72 RECXXXTP2M72 RECXXXTP2M72 RECXXXTP2M72 RECXXXTP2M72 BLK RECXXXTP2M72 BLK RECXXXTP2M72 BLK RECXXXTP2M72 BLK RECXXXTP2M72 BLK RECXXXTP3M72 RECXXXTP3M72 RECXXXAA RECXXXXP4 RECXXXNP RECXXXNP RECXXXNP RECXXXNP RECXXXXP4 RECXXXNP RECXXXXP4 RECXXXXA PURE 2 RECXXXAA PURE RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
PSxxxM8GF-18/VH, where xxx is 390 to 410, PSxxxM6GPH-18/VH, where xxx is 390 to 410, PSxxxM6-24/TH, where xxx is 510 to 550. REC: RECXXTP2 RECXXTP2BLK RECXXTP2BM RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP4 RECXXXAA RECXXXAA RECXXXAA RECXXXXP RECXXXNP RECXXXNP RECXXXNP RECXXXXP RECXXXAA RECXXXTP4 RECXXXAA PURE 2 RECXXXAA PURE 2 RECXXAA PURE -RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
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REC: RECXXXTP2 RECXXXTP2BLK RECXXXTP2M RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK2 RECXXXAA RECXXXTP3M RECXXXXP4 RECXXXNP RECXXXTP4 RECXXXTP4 RECXXXTP4 RECXXXNP2 RECXXXAA PURE RECXXXNP2 RECXXXAA PURE 2 RECXXXAA PURE -RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
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RECXXXTP2-BLK RECXXXTP2M 72 RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK2 RECXXXAA RECXXXTP3M RECXXXNP RECXXXNP RECXXXTP4 RECXXXAA Pure RECXXXAA Pure RECXXXAAP URE 2 RECXXXAAP URE 2 RECXXXAAP URE -RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			RECXXXTP2
RECXXXTP2M RECXXXTP2M 72 RECXXXTP2M 72 BLK RECXXXTP2M 72 BLK2 RECXXXTP2SM 72 RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 BLK2 RECXXXTP3M RECXXXXP4 RECXXXNP RECXXXNP RECXXXNP RECXXXNP4 RECXXXNP4 RECXXXNP2 RECXXXA PURE 2 RECXXXA PURE 2 RECXXXA PURE-RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
RECXXXTP2M 72 BLK RECXXXTP2SM 72 BLK2 RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK2 RECXXXAA RECXXXAA RECXXXTP3M RECXXXNP RECXXXTP4 RECXXXAP PURE RECXXXAP PURE 2 RECXXXAA PURE 2 RECXXAA PURE -RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
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RECXXXTP2M 72 BLK2 RECXXXTP2SM 72 RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK2 RECXXXAA RECXXXTP3M RECXXXNP RECXXXNP RECXXXTP4 RECXXXAA Pure RECXXXNP2 RECXXXNP2 RECXXXAA PURE 2 RECXXXAA PURE-RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
RECXXXTP2SM 72 RECXXXTP2SM 72 BLK RECXXXTP2SM 72 BLK2 RECXXXAA RECXXXTP3M RECXXXNP RECXXXTP4 RECXXXTP4 RECXXXAA Pure RECXXXNP2 RECXXXNP2 RECXXXAA PURE 2 RECXXXAA PURE 7 RECXXXAA PURE -RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
RECXXXTP2SM 72 BLK RECXXXAA RECXXXTP3M RECXXXNP RECXXXTP4 RECXXXAA Pure RECXXXNP2 RECXXXNP2 RECXXXAA PURE 2 RECXXXAA PURE -AII may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
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RECXXXNP RECXXXTP4 RECXXXAA Pure RECXXXNP2 RECxxxAA PURE 2 RECxxxAA PURE-RX - All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
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- All may be followed by BLK or BLACK SEG Solar: SEG-XXX-BMB-HV,			
SEG Solar: SEG-XXX-BMB-HV,			
SEG-XXX-BMB-HV,			,a, so lone ned by bek of bekter
SEG-XXX-BMB-HV,			SEG Solar:
1 1 1 1 1			
SFG-yyy-RMR-TR			SEG-xxx-BMB-TB

SEG-xxx-BMD-HV &
SEG-xxx-BMD-TB, where
xxx can be 370-425 SEG-XXX-BTD-BG
where xxx is 420-435

Silfab:
SLAXXX-M
SLAXXX-P
SSAXXX-P
SLGXXX-M
SLGXXX-P
SSGXXX-M
SLGXXX-P
SILXXXBL
SILXXXML
SILXXXML
SILXXXNT

SILXXXNL

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a...

TopSpeed Mounting System	γ*	N	Y – Class A with	SILXXXBK SILXXXNX
			and without skirt	SILXXXNU
USL - Mounting and Bonding			assembly for Type	
Systems for use with			1, Type 2 and Type	SILXXXHC
Photovoltaic Modules, consisting			29 modules	SILXXXHN
of the following components:				SILXXXBG
Mount, Row Link, Skirt Assembly,				SILXXXQD
Wire Management Clips, Ground				SILXXXQM
Lugs, MLPE Frame Attachment				SIL-xxxHC+
Kit.				SIL-xxxHM
· · · ·				
				S-Energy:
				SL65-54BGJ-XXXV
				SL65-54BHJ-XXXV
				Solaria:
				Solaria PowerXT-XXXR-PX
				Solaria PowerXT-XXXR-BX
	1			
				Solaria PowerXT-XXXR-AC
				Solaria PowerXT-XXXR-PM
				Solaria PowerXT-XXXR-PM-AC
				SolarJuice (Solar4America)
				S4AXXX72H5BB,
				S4AXXX72H5BW,
				S4AXXX72M5BB,
				S4AXXX72M5BW,
				where XXX is 375-420.
				S4AXXX60M5BB,
				S4AXXX60M5BW,
				S4AXXX60H5BB,
				S4AXXX60H5BW,
				where XXX is 320-345
				S4AXXX-108MH10SB,
				S4AXXX-108MH10SW,
				S4AXXX-108MH10BB,
				S4AXXX-108MH10BW,
				Where XXX is 385-410.
				S4AXXX-108TH10BB,
				where XXX is 425 to 440.
				S4AXXX-144MH10STT,
				S4AXXX-144MH10BTT,
				where XXX is 530-565
				S4AXXX-144TH10STT,
				S4AXXX-144TH16STT,
				where XXX is 565 to 590.
				SunPower:
				SPR-AXXX-G-AC
				SPR-AXXX
				SPR-AXXX-BLK-G-AC
				SPR-AXXX-BLK
				SPR-MXXX-H-AC
				SPR-MXXX
				SPR-MXXX-BLK-H-AC SPR-MXXX-BLK
				SFR-IVIAAA-BLK
				SunSpark:
				SST-XXXM3-60
				SST-XXXM3B-60
				SST-XXXM3-72
	·			_

I I	1
	Talesun:
	TP660M-XXX
	TP660P-XXX
	TP672M-XXX
	TP672P-XXX
	170/27-
	Trina:
	TSM-XXXDD05(II)
	TSM-XXXDD05A.05(II)
	TSM-XXXDD05A.08(II)
	TSM-XXXDD05A.082(II)
	TSM-XXXPA05
	TSM-XXXPA05.05
	TSM-XXXPA05.08
	TSM-XXXPD05
	TSM-XXXPD05.002
	TSM-XXXPD05.05
	TSM-XXXPD05.05S
	TSM-XXXPD05.08
	TSM-XXXPD05.082
	TSM-XXXPD05.08D
	TSM-XXXPD05.08S
	TSM-XXXDD05H.05(II)
	TSM-XXXDD06M.05(II)
	TSM-XXXDE15H(II)
	TSM-XXXDE15M(II)
	TSM-XXXDE06X.05(II)
	TSM-XXXDE09.05
	TSM-XXXDE15V(II)
	TSM-XXXDE19
	TSM-XXXDEG15VC.20(II)
	TSM-XXXDEG18MC.20(II)
	TSM-XXXDEG19C.20
	TSM-XXXDEG19C.20
	I I
	TSM-XXXDE09C.05 TSM-XXXDE09C.07
	TSIVI /VVVBE03C.07
	URECO
	FAMxxxE7G-BB
	FBMxxxMFG-BB
	Vikram Solar:
	SOMERA VSMHBB.60.XXX.05
	SOMERA VSMH.72.XXX.05
	PREXOS VSMDHT.73 XXX 05
	PREXOS VSMDHT.72.XXX.05
	VSUN Solar:
	VSUNXXX-144BMH-DG,
	VSUNXXX-120BMH,
	VSUNXXX-108BMH
	ZNShine:
	ZXM6-60-XXX/M
	ZXM6-NH120-XXXM, ZXM6-NH144-XXXN
	ZXM7-SH108-XXX/M
	**ZXM7-SHLDD144-XXXM
	REC Solar, model
	RECxxxAA Pure-R,

19/24, 4:30 PM	winio.Looso to - Mounting Systems, Mounti	ng Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Module where xxx can be 390-430
		REC Solar, model
		RECxxxNP3, where
		xxx can be 380-410
		Trina Solar, model
		TSM-xxxNE09RC.05, where
		xxx can be 365-430
		Aptos Solar, model
		DNA-108-MF10-xxxW, where
		xxx can be 390-415
		NRTL Listed Module Level Power
		Electronics:
		Rapid Shutdown Devices:
		AP Smart:
		Model RSD-S-PLC
		Celestica International:
		DG-006-F001201x
		DG-006-F001401x
		Delta Electronics:
		GPI00010105
		Ginlong Technologies:
		Solis-RSD-1G
		Solis-MLRSD-R1-1G
		Solis-MLRSD-R2-1G
		SMA:
		RSB-2S-US-10
		Microinverters:
		Enphase:
		M250
		M215
		C250
		IQ6-60-2-US
		IQ6PLUS-72-2-US
		IQ7-60-2-US
		IQ7-60-B-US
		IQ7PLUS-72-2-US
		IQ7PLUS-72-B-US
		IQ8-60
		IQ8PLUS-72
		IQ8A-72
		IQ8H-208-72 IQ8H-240-72
		Optimizers:
		Lunar Energy – Lunar Optimizer
		SolarEdge:
		P300-5NC4ARS
4		P320-5NC4ARS

11/19/24, 4:30 PM QIMS.E359313 - Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules a... P370-5NC4AFS P400-5NC4AFS P320 P340 P370 P400 P401 P405 P485 P505 P730 P800p P850 P860 P950 S440 S500 P1100 P1101 Monitoring Devices: Tigo: TS4-R-F TS4-R-M TS4-R-O TS4-R-S TS4-R-M-DUO TS4-R-O-DUO TS4-R-S-DUO TS4-A-F TS4-A-2F TS4-A-O TS4-A-S Generac – Optimizer model S2502 Philadelphia Solar: **PS-M144(HCBF)-XXXW PS-M108(HCBF)0XXXW PS-M108(HC)-XXXW PS-M144(HC)-XXXW Thornova: TS-BB54(XXX) TS-BB60(XXX) **TS- BG54(XXX) TS-BG60(XXX) **TS-BG72(XXX)

11/19/24, 4:30 PM	QIMS.E359313 - N	Mounting Systems,	Mounting Devices, C	Clamping Devices and 0	Ground Lugs for Use with Photovoltaic Mode	ules a

Photovoltaic Ground Lug - Bolt-through Design - Tested in Combina

Cat.		Standard Mounting Hardware		tigated for	Min Profile		inting Max	Surfa	ce Surface		ounting Screw Tightening Torque	ho	nting- ole nge	Fid Wire Type	eld-w Wir
No.	(A)	Provided	Bonding	Mounting	(w x l)	Thk	Thk	Mtl	Prep	Size	(lbs-in.)	Min	Max	(Mtl)	Тур
242- 02101	20	Υ	Υ	N	1.5 in. x 1.5 in.		nrack nd or dard	AL	Anodized	5/16- 18	16	N/A	N/A	CU	Soli
242- 92202	20	Υ	Υ	N	0.5 in. x 0.5 in	Mou on R Level Slide Asse Rails	L rlock r mbly	AL	Anodized	5/16- 18	8 ft-lb	N/A	N/A	CU	Soli

Photovoltaic Bonding Device: MLPE Frame Attachment Kit

Cat. No.	Max OCPD (A)	Frame Thickness Anodized AL (mm)	MLPE Thickness AL(mm)	MLPE Thickness SS 304 (mm)	MLPE Slot Width (mm)	Torque Value	Tested in Combination With:
242- 02151	20	0.8 - 2.4	2.0 - 3.2	2.0	8.1 - 8.5	10 ft.lb.	PV Modules Described in Mounting Systems noted above with frame thickness limitations.

The following components have been tested for roof penetration utilizing the Wind-Driven Rain Test from UL Subject 2582:

	Tested with	
	the	
Tested with	Following	Tested with
the	Seal/Sealant	the
Following	&	Following
Securement	Specific	Roof Deck
Means	Location	Construction

Cat. No.	ivieans	Location	Construction
Photovoltaic mounting system component			
RL Universal Mounting System - Umbrella Bolt Flashing consisting of Composition flashing, Flash Track PRC, Flash Track End Caps, Umbrella Bolt; SpeedSeal Track.	Lag Bolt	No sealant	Asphalt shingles
UR-40 Mounting System - Consisting of the following components: Composition flashing, Umbrella L-foot, Umbrella Bolt; SpeedSeal Foot Assembly kit	Lag Bolt	No sealant	Asphalt shingles
UR-60 Mounting System - Consisting of the following components: Composition flashing, Umbrella L-foot, Umbrella Bolt, and SpeedSeal Foot Assembly kit	Lag Bolt	No sealant	Asphalt shingles

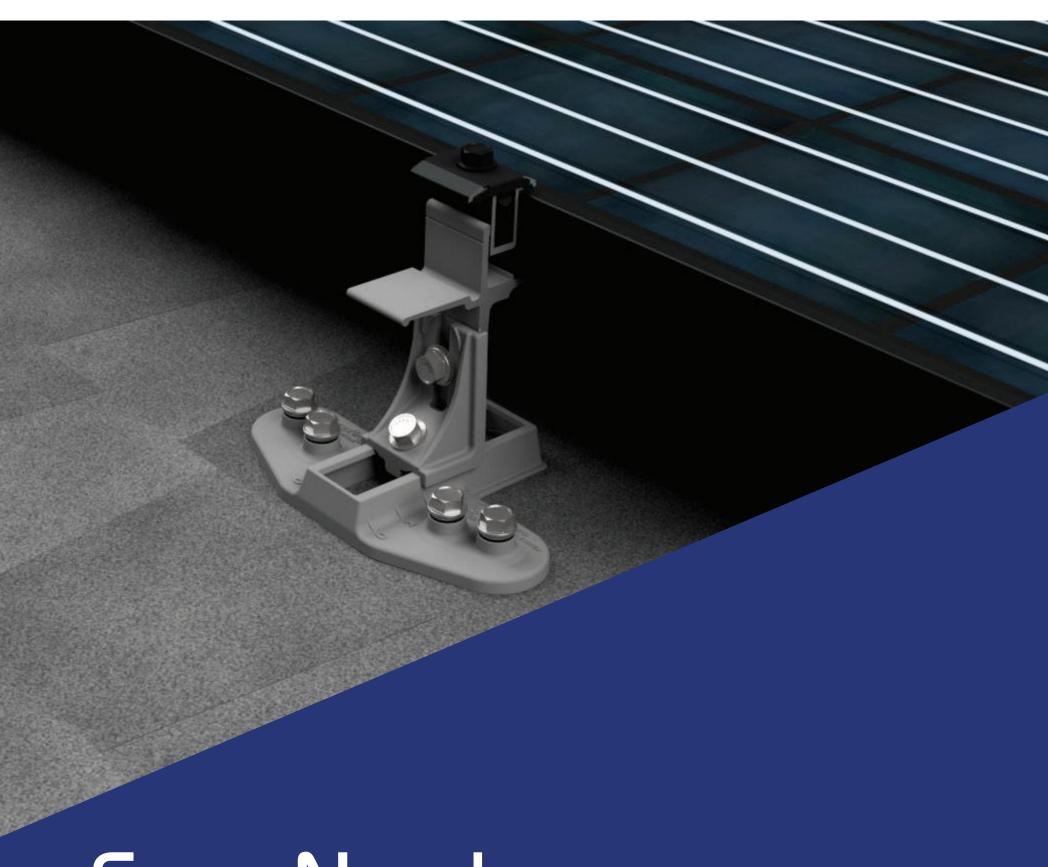
^{* -} Not all components have been evaluated for bonding. See UL report and instruction manual for details.

Trademark and/or Tradename: "SNAPNRACK"

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^{**-} Modules with this mark do not have the correct fire typing to meet system fire classification requirements.



Snaphrack[™] Solar Mounting Solutions

TopSpeed™ Mounting System

Installation Manual

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Montgomery County

Historic Preservation Commission

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An Intro to SnapNrack TopSpeed™ with SpeedSeal™ Technology

snapnrack.com

SnapNrack's primary goal is to provide our customers with the lowest possible installed cost for mounting residential solar modules, without compromising the values the industry has come to expect: ease of use, quality, aesthetics, and safety. Designing with this goal in mind, we are proud to present the SnapNrack TopSpeed™ mounting system with SpeedSeal™ Technology.

SnapNrack has created a ground breaking system combining great features and benefits we are known for, with our TopSpeed™ System and the most up to date technical innovation in the industry, thus reducing parts while driving down labor, material, and total installation costs. Designed to work with standard module frames, achieving UL 2703 Listing for Grounding/Bonding and Fire Classification, providing integrated wire management, aesthetics and our industry leading "Snap-In" features, SnapNrack is providing the simplest and most cost effective solar mounting solution on the market with TopSpeed™ including integrated fasteners and SpeedSeal™ Technology.

Advantages of Installing the SnapNrack TopSpeed™ System

Modules are installed with a minimum number of parts

This elimination of parts leads to a lower estimated system cost for both the installer and home owner.

Built in Wire Management and Aesthetics

Extensive wire management solutions have been designed specifically for the system that adapts to multiple possible mounting positions.

The system is designed to be aesthetically pleasing and sturdy with a skirt that provides considerable strength at the leading edge and an elegant look for those seeking high end looking systems.

SnapNrack TopSpeed™ includes SpeedSeal™ Technology

SpeedSeal™ Technology features integrated flashing. This eliminates loosening layers of composition and removing nails with a pry bar, leading to less damage to the roof, minimized potential roof leaks, and much faster installs.

TopSpeed™ Mounts attach Directly to the Decking

As well as all of the benefits associated with the standard SpeedSeal™ Technology, TopSpeed™ attaches to the roof sheathing and does not require rafter attachment. Simply attaching to the roof sheathing removes the requirement for finding rafters and drilling pilot holes, creating potential rafter misses that can cause leaks.

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Wire Management
MLPE Attachment
Module Installation
Grounding Specifications
Maintaining the Grounding Bonding When Removing a Module
Appendix A: List of approved Modules and MLPEs

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Certification Details

SnapNrack TopSpeed™ mounting system has been evaluated by Underwriters Laboratories (UL) and Listed to UL Standard 2703 for Grounding/Bonding, and Fire Classification.

Grounding/Bonding

Only specific components have been evaluated for bonding, and are identified as being in the ground path. The TopSpeed™ components that have been evaluated for bonding are the Mount Assembly (Mount Clamp Top, Module Clamp Tower, Angle Bracket), Clamp Assembly, Universal Skirt, Universal Skirt Clamp, Ground Lugs, and Smart Clips.

Universal Skirt Spacers, Mount Channel Nut, and Mount Base are not required to be bonded to the system based on the exceptions in clause 9.1 of UL 2703 1st Ed. Wire management clips are utilized to route conductors away from these components and must be assembled according to the instructions.

This mounting system may be used to ground and/or mount a PV module complying with UL 1703 or UL 61703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions. See Appendix A for the list of modules tested for use with the TopSpeed™ System for integrated grounding.

Ground Lugs have been evaluated to both UL 467 and UL 2703 Listing requirements. The following ground lugs have been approved for use: SnapNrack model 242-92202, and Ilsco models GBL-4DBT and SGB-4.

The following components have been evaluated for bonding as the fault current ground path: TopSpeed™ Mount Assembly, (Mount Clamp Top, Module Clamp Tower, Angle Bracket), Clamp Assembly, Wire Management Clips, and Ground Lugs. In order to maintain the Listing for bonding, wire management clips must be assembled to route conductors away from parts that have not been evaluated for bonding.

A Listed (QIMS) and Unlisted Component (KDER3) grounding lug, SnapNrack part no. 242-92202, is attached to the module frame flange for the normal attachment of a Grounding Electrode Conductor, which provides bonding within the system and eventual connection to a Grounding Electrode, as required by the U.S. NEC. Details of part no. 242-92202 can be found in Volume 1, Section 4, and Volume 2, Section 2. When this method is used, the grounding symbol is stamped onto the body of the ground lug to identify the grounding terminal.

An alternate method of grounding, a UL Listed (KDER and QIMS) grounding lug, Ilsco (E34440 and E354420) model SGB-4 is attached to the module frame flange. When this method is used, the grounding terminal is identified by the green colored screws of the lug.

An alternate method of grounding, a UL Listed (KDER and QIMS) grounding lug, Ilsco (E34440 and E354420) model GBL-4BDT is attached to the module frame flange through the specified hardware and torque values. When this method is used, the grounding terminal is identified by the green colored set screw of the lug.

An alternate method of grounding, Enphase R/C (QIKH2)(QIMS2) model M250, M215 & C250 is bonded to the Listed PV module frame by the Enphase R/C (QIMS2) Model EFM-XXMM anodization piercing mounting/clamping kit. The total roof-mounted PV system is bonded (modules and microinverters) together and the assembly is bonded to ground through the Enphase R/C (QIMS2) Engage Cables;

Model ETXX-240, ETXX-208 or ETXX-277, when properly grounded at R/C (QIMS2), Dynoraxx (E357716) photovoltaic bonding device cat. no component that may be used with this system. The Dynobond device module to module bonding. The Dynobond device attaches to the frar Listed (QIMS), SnapNrack MLPE Frame Attachment Kit model 242-021 approved MLPE device back plates to frames of modules.

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Fire

SnapNrack TopSpeed[™] has been investigated for a Class A System Fire Classification for Steep-Sloped and low sloped roofs with Type 1 and Type 2 modules. Because the system was tested at 5 inches above the test roof fixture, TopSpeed[™] can be installed without any height restrictions due to System Fire Classification. See Appendix A for potential module-specific height restrictions due to module temperature. The Skirt is considered an optional component with respect to Fire Classification, as SnapNrack TopSpeed[™] maintains the same Fire Classification Rating both with and without the skirt.

NOTE: Modules with an asterisk* have a fire rating that is different from Type 1, Type 2 or Type 29. SNR systems have only been evaluated for use with Type 1, Type 2, or Type 29 modules. Modules with a different fire type rating should be considered to not have been evaluated for use with SNR systems with respect to a system fire rating.

Inspection Practices

SnapNrack recommends a periodic re-inspection of the completed installation for loose components, loose fasteners, and any corrosion, such that if found, the affected components are to be immediately replaced.

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TopSpeed™ Structural Components



TopSpeed™ Mount

SnapNrack TopSpeed™ Mount assembly including SpeedSeal™ base, clamp top, and (4) SnapNrack #14 SS Wood Screws with 1/2" Hex Head.



TopSpeed™ Clamp

SnapNrack TopSpeed™ Clamp assembly including including Link bottom, Link top, and springs.



Universal Skirt

SnapNrack Universal Skirt in double portrait or single landscape lengths.

Wire Managements Components



Skirt Spacers

SnapNrack Universal Skirt Spacer for 40mm, 38mm, 35mm, 32mm, and 30mm modules.



Smart Clip

Module frame cable clip, holds two PV wires or Enphase IQ-Cables.



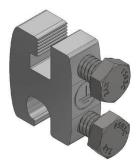
Smart Clip XL

Module frame cable clip, holds six PV wires or four Enphase IQ-Cable.

Wire Saver

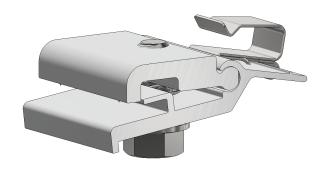
Designed to secure conductors that become loose and hang below the array, holds one conductor.

Grounding/MLPE Components



Ground Lug

SnapNrack Ground Lug assembly used for attaching the Equipment Grounding Conductor on to one module or any TopSpeed™ Mount per array. 5



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Hardware Torque Specifications

The recommended torque to be applied to components for proper assembly and bonding are as follows:

Hardware Description	Torque Specification
All TopSpeed™ ½" bolts; System Leveling Bolt, TopSpeed™ Mount Clamping Bolt, Clamp Bolt	16 ft-lb
Ground Lug model 242-92202 to Module Frame or anywhere on the TopSpeed™ Mount, and Ground Lug model 242-92202 to Grounding Electrode Conductor (6-12 SOL)	8 ft-lb
MLPE Frame Attachment Kit, MLPE Rail Attachment Kit	10 ft-lb
SolarEdge Frame Mounted Microinverter Bracket to Module Frame	11 ft-lb
Enphase Frame Mounted Microinverter Bracket to Module Frame	13 ft-lb
Ground Lug model SGB-4 to module	75 in-lb
Ground Lug model SGB-4 to Grounding Electrode Conductor (4-14 SOL or STR)	35 in-lb
Ground Lug model GBL-4DBT to module	35 in-lb
Ground Lug model GBL-4DBT to Grounding Electrode Conductor (10-14 SOL or STR)	20 in-lb
Ground Lug model GBL-4DBT to Grounding Electrode Conductor (8 SOL or STR)	25 in-lb
Ground Lug model GBL-4DBT to Grounding Electrode Conductor (4-6 SOL or STR)	35 in-lb

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Site Survey

- Measure the roof surfaces and develop an accurate drawing, including any obstacles such as chimneys and roof vents.
- If plans for the roof structure are available, verify that the plans match the final structure.
- Identify any roof access or setback areas as required by the local AHJ.
- Identify any construction issues that may complicate the process of locating rafters from the roof surface.
- If you find structural problems such as termite damage or cracked rafters that may compromise the structure's integrity consult a structural engineer.

Design Guidance

- PV Designers should account for the 0.75 inch spacing between rows and columns of modules when creating the layout.
- Determine site conditions for calculating the engineering values, confirm site conditions and code versions comply with local AHJ requirements.
- Reference site conditions and system specifications in TopSpeed™ Structural Engineering Report to determine the number of attachments per module side.
- Insert SnapNrack installation details into design plan set specific to the project requirements.
- Draw roof attachment locations on plan set layout based on TopSpeed™ Structural Engineering.

Best Practice:

If environmental load conditions require three $TopSpeed^{m}$ attachments per module side this is only required when modules share attachments.

- Identify homerun and Junction Box locations based on rooftop wiring requirements.
- Mark distance from array edge to identifiable roof feature in x and y axes.

⚠ Safety Guidance

- Always wear appropriate OSHA approved safety equipment when at active construction site.
- Appropriate fall protection or prevention gear should be used. Always use extreme caution when near the edge of a roof.
- Use appropriate ladder safety equipment when accessing the roof from ground level.

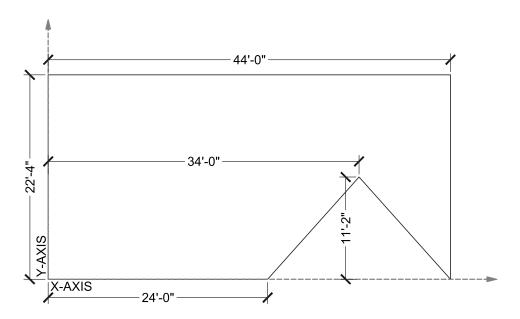
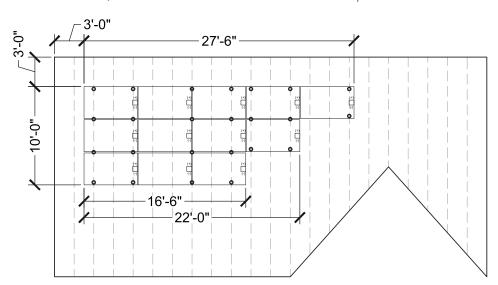


Image note: X-Axis described in this manual is cross-slope on the roof, Y-Axis is in line with the roof slope.



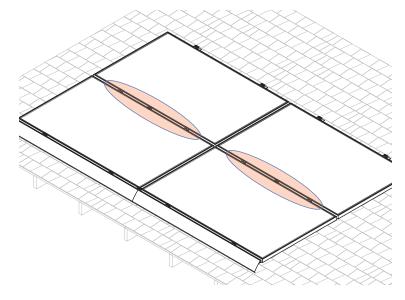


Image note: This four module array is installed in a high load configuration with three attachments per side where two

modules shar three attachr of the array.

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TopSpeed™ Mount to Module Frame Installation

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Required Tools

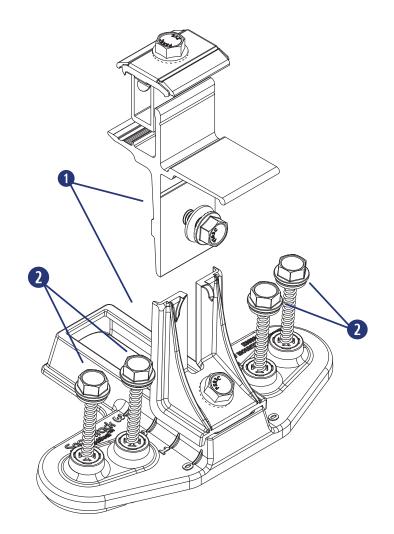
- Socket Wrench/Impact Driver
- Torque Wrench
- 1/2" Socket

Materials Included - TopSpeed™ System with SpeedSeal™ Technology

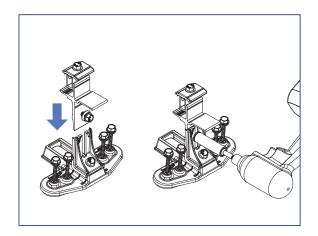
- **1** (1) SnapNrack TopSpeed™ Mount
- (4) SnapNrack #14 Wood Screw with 1/2" Hex Head & sealing washer

Best Practice:

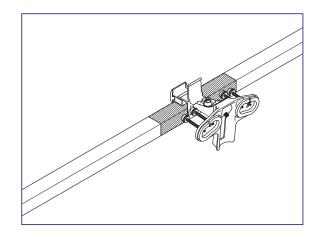
Attach all TopSpeed™ mounts as the modules are being prepped with MLPEs on the ground. Attach Mounts before attaching MLPEs to simplify wire management.



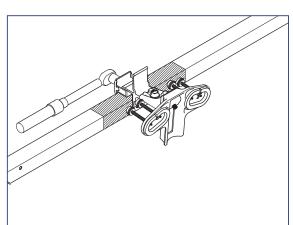
INSTALLATION INSTRUCTIONS



1) Assemble all TopSpeed™ Mounts required for the installation. Slide the clamp tower assembly into the angle bracket riser and tighten the leveling bolt to 16 ft-lbs.



2) Position TopSpeed™ Mount clamp on the module frame within the module manufacturers required clamping zone.



3) Tighten 1/2" clamping bolt to 16 ft-lb. Only two Mounts are required per module on one side.



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TopSpeed™ Universal Skirt Layout

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Required Tools

Roof Marking Crayon or ChalkTape Measure

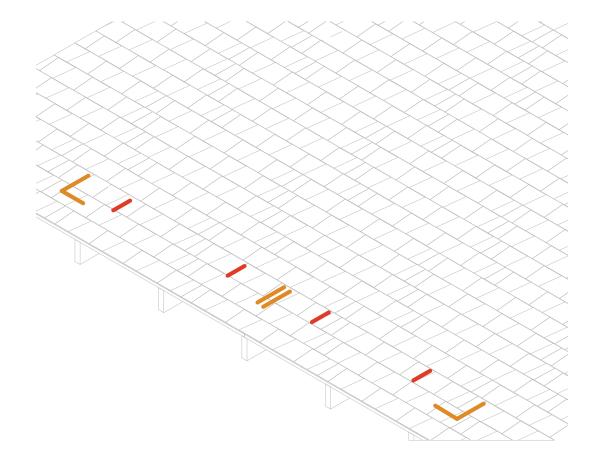
LAYOUT INSTRUCTIONS

1) Use a tape measure to verify that all modules will fit properly on the roof surface.

2) On the roof draw the layout for the skirt installation including module gaps (recommended 0.75 inch gap), bottom corners, and locations of the two TopSpeed™ attachments per module that clamp to the skirt. Three attachments per module is never required at the skirt.

nstall Note:

If environmental load conditions require three TopSpeed $^{\text{TM}}$ attachments per module side this is only required when modules share attachments.



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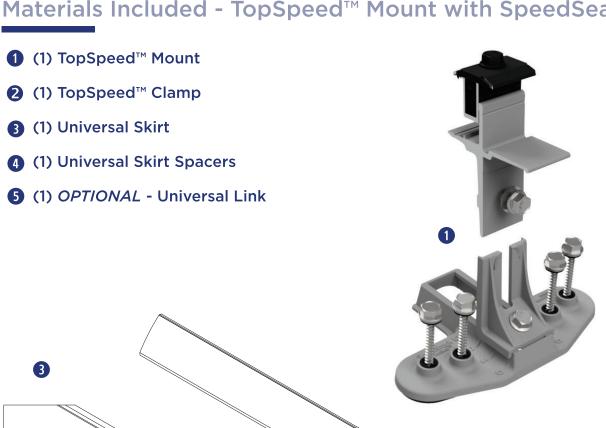
TopSpeed™ Mount: Skirt Installation

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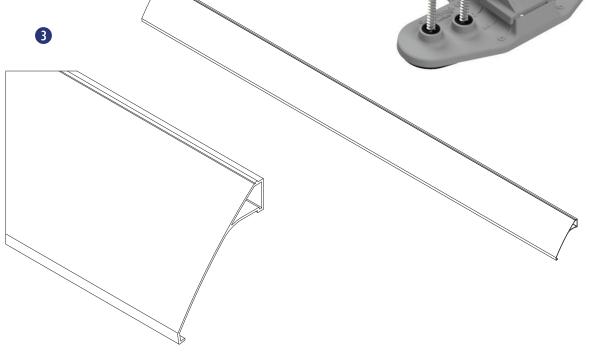
Required Tools

- Socket Wrench/Impact Driver
- Torque Wrench
- 1/2" Socket
- **Roofing sealant**

Materials Included - TopSpeed™ Mount with SpeedSeal™ Technology









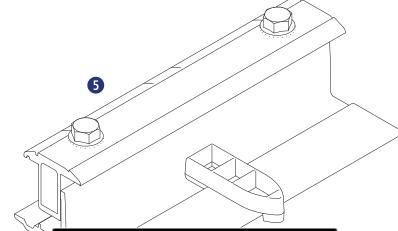






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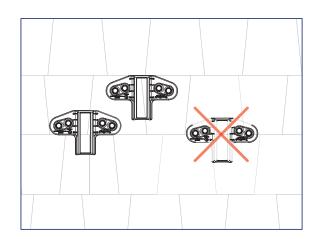
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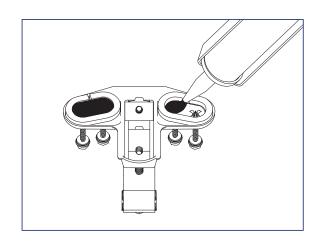
TopSpeed™ Mount Skirt Installation

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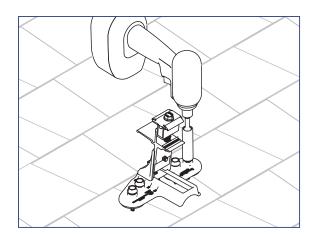
INSTALLATION INSTRUCTIONS



1) Install TopSpeed™ Mounts at locations drawn during the skirt layout. Mounts must be installed entirely on one course of composition.



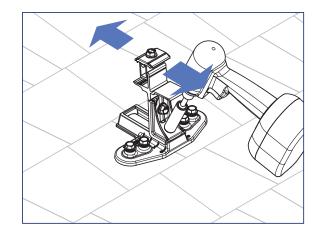
2) Fill both cavities on bottom of TopSpeed™ Mount created by SpeedSeal™ gasket with roof sealant to ensure a watertight seal.



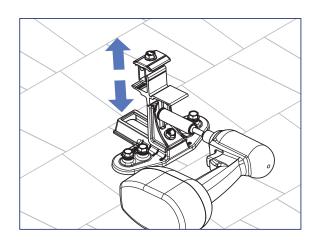
3) Attach TopSpeed™ Mount to roof using the (4) SnapNrack #14 Wood Screws with 1/2" hex head that are captured in the Mount.

Install Note:

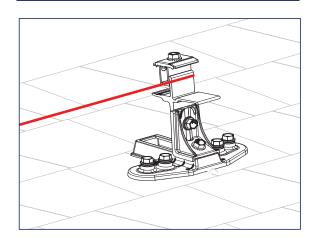
Roof sealant should be expelled from both vents of the TopSpeed™ Mount as it is installed to assure the proper amount of roof sealant has been applied. If sealant is not expelled from all four vents, remove TopSpeed™ Mount, add more sealant to the cavity, then reinstall.



4) Loosen Course Adjustment bolt and adjust end Mounts up or down until aligned with bottom edge of array as marked on the roof, then tighten the Course Adjustment bolt.



5) To set the TopSpeed™ Mount level loosen the Leveling bolt and move the clamp up or down, then tighten the Leveling bolt and torque to 16 ft-lb.



6) Pull string line tight from one corner mount to opposite corner mount to align and level all TopSpeed™ Mounts between the end mounts.

Install Note: Use the string line alignment feature

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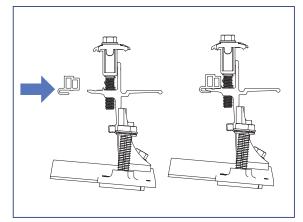
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TopSpeed™ Mount Skirt Installation

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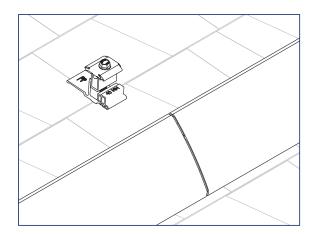
INSTALLATION INSTRUCTIONS



7) Universal Spacers will need to be added to Mounts and Clamps where Skirt will be installed.



clamping skirt into mount.



9) Use TopSpeed™ Clamps to connect multiple lengths of Array Skirt

Skirt.

Install Note:
Optionally use Universal Links to connect lengths of Array Skirt.



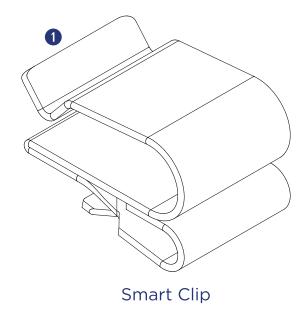
Required Tools

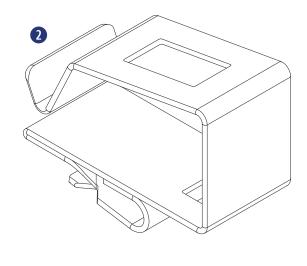
Socket Wrench ■ Torque Wrench ■ 1/2" Socket ■ Electrician Tools

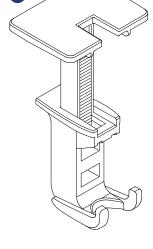
Materials Included

Smart Clips

- 1 (1) Smart Clip [(2) PV Wire, (1) Enphase IQ Cable]
- (1) Smart Clip XL [(6) PV Wire, (4) Enphase IQ]
- (1) Wire Saver [(1) PV Wire]







Smart Clip XL

Wire Saver

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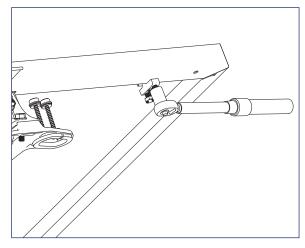
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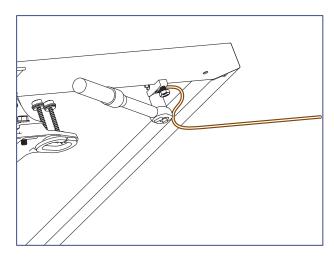
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INSTALLATION INSTRUCTIONS - GROUND LUG

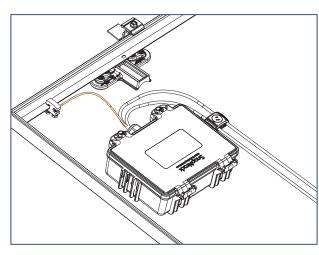
The SnapNrack Ground Lug to be used in accordance with the National Electric Code, ANSI/NFPA 70.



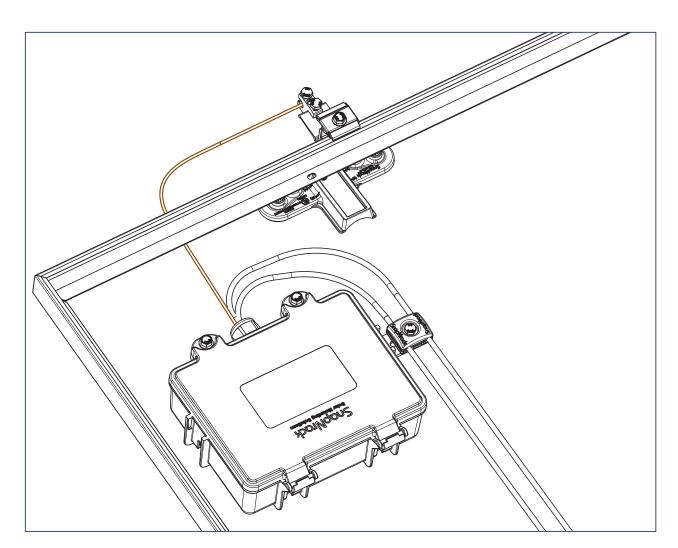
1) Ground Lug (242-92202) can be attached anywhere along the module frame or any TopSpeed™ Mount near the Junction Box. Torque module clamping bolt to 8 ft-lb.



2) Run 10 - 6 AWG, solid, bare copper GEC into Ground Lug channel, torque wire clamping bolt to 8 ft-lb.



3) Run bare, solid EGC from Ground Lug R to Junction Box, bond bare EGC to stranded EGC in Junction Box. For details on installing the Junction Box reference the **Junction Box Installation Manual.**



4) Optionally; Install Ground Lug on the Mount Landing Pad at the top of the array. Run bare copper between ground lug and Junction Box.

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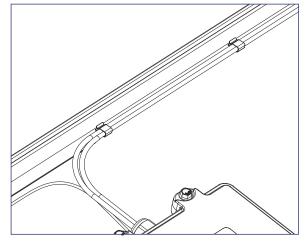
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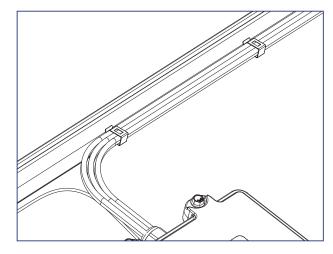
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INSTALLATION INSTRUCTIONS - SMART CLIPS

SmartClip and SmartClip XL should be used to route conductors in a neat and workmanlike manner away from all non-bonded components and support the conductors adequately to eliminate potential damage.



1) Use SnapNrack Smart Clip II to manage up two PV wires inside the module frame while prepping out the modules on the ground or installing modules on the roof.



2) Use SnapNrack Smart Clip XL to manage larger bundles of PV wire; up to 6 PV wires per clip

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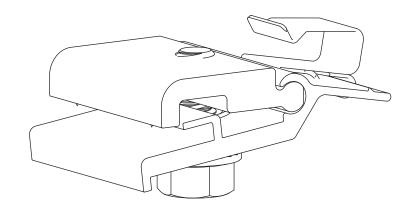
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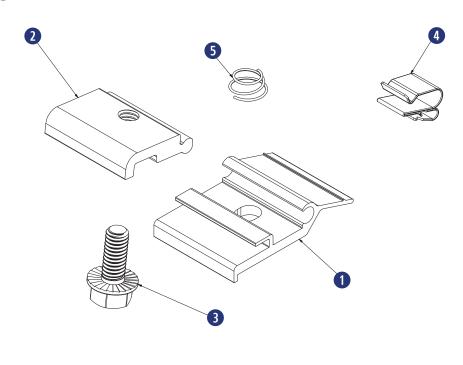
Required Tools

- - Socket Wrench Torque Wrench 1/2" Socket

Materials Included - MLPE Rail Attachment Kit

- 1 (1) SnapNrack MLPE Frame Attachment Top
- (1) SnapNrack MLPE Frame Attachment Bottom
- (1) 5/16"-18 X 3/4" Serrated Flange Bolt SS
- 4 (1) SnapNrack Smart Clip
- (1) SnapNrack MLPE Frame Attachment Coil Spring SS

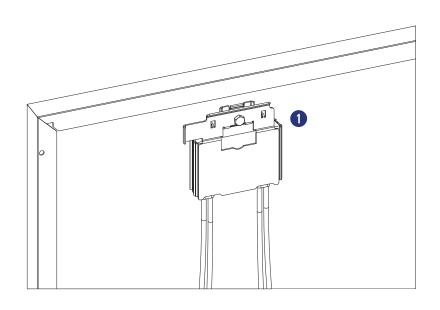




Materials Included

SolarEdge Frame Mount

1 (1) SolarEdge Optimizer w/ Frame-Mounted Module Add-On



Enphase Frame Mount

- 1 (1) Enphase Microinverter
- (1) Enphase Frame Mount

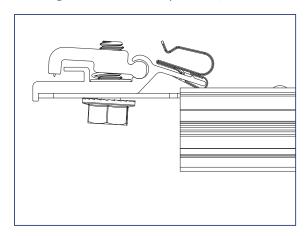


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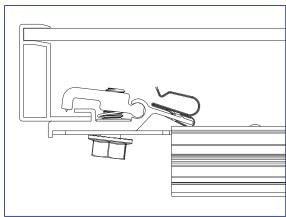
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INSTALLATION INSTRUCTIONS - SNAPNRACK MLPE FRAME ATTACHMENT KIT

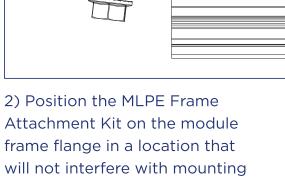
SnapNrack MLPE Frame Attachment kit are used to attach module level performance enhancing devices, and other devices such an SRD (rapid shutdown device), directly to module frames, and provide integrated grounding/bonding for Devices grounded through metal back plate. (Refer to the list of tested MLPE devices on page XX of this manual).

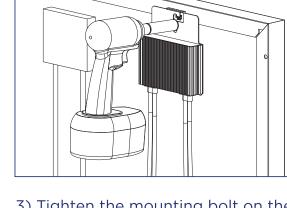


1) Slide the backplate channel of the MLPE device under the MLPE Frame Attachment Kit bolt. The MLPE mounting plate should rest against the MLPE mounting plate backstop on the MLPE Frame Attachment Kit.



system components. The module frame flange should rest against the module flange backstop on the MLPE Frame Attachment Kit.

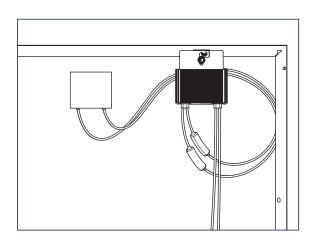




3) Tighten the mounting bolt on the MLPE Frame Attachment Kit to 12 lb-ft (144 lb-in).

Install Note:

The MLPE Frame Attachment Kit bonds the following components: Module Frame, MLPE backplate and Smart Clip.



4) Connect the module leads to the input connectors on the MLPE device and manage conductors with the integrated Smart Clip.



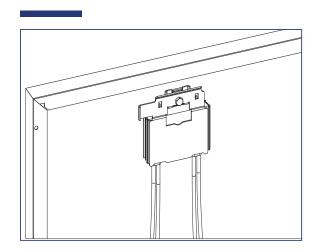
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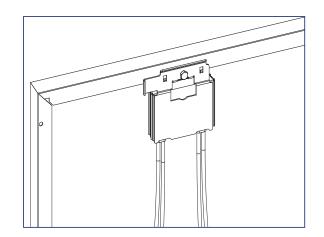
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By Devon.Murtha at 9:47 am, Jul 29, 2025

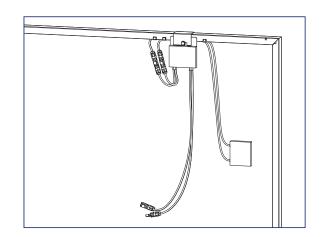
INSTALLATION INSTRUCTIONS - SOLAREDGE FRAME MOUNT



1) Locate the SolarEdge optimizer with Frame-Mounted Module Add-On at a location on the module frame that will not interfere with the TopSpeed™ Mounts.



2) Install the optimizer mounting plate onto the module frame and tighten hardware to 11 ft-lbs.



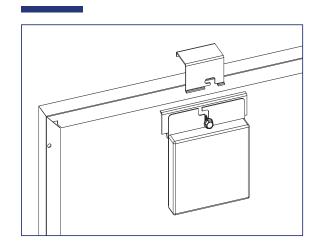
3) Connect the module leads to the input connectors on the optimizer and manage conductors with SnapNrack Smart Clips.



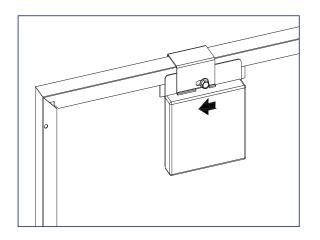
nstall Note:

If module is mounted in portrait, install MLPE on long side, short side for landscape.

INSTALLATION INSTRUCTIONS - ENPHASE FRAME MOUNT



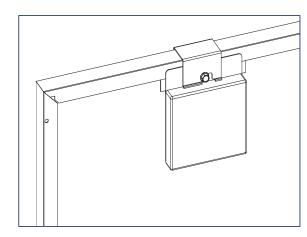
1) Locate the Enphase Frame Mount bracket clamp at a location on the module frame that will not interfere with the TopSpeed™ Mounts.



2) Slide the microinverter unit onto the bracket clamp, then move it slightly to the left.

Install Note:

The microinverter mounting flange should be on the outside of the module frame.



- 3) Tighten the hardware to 13 ft-lbs.
- 4) Connect module leads to microinverter DC connectors.

Install Note:

Refer to the Enphase Frame Mount installation guide for additional instructions.

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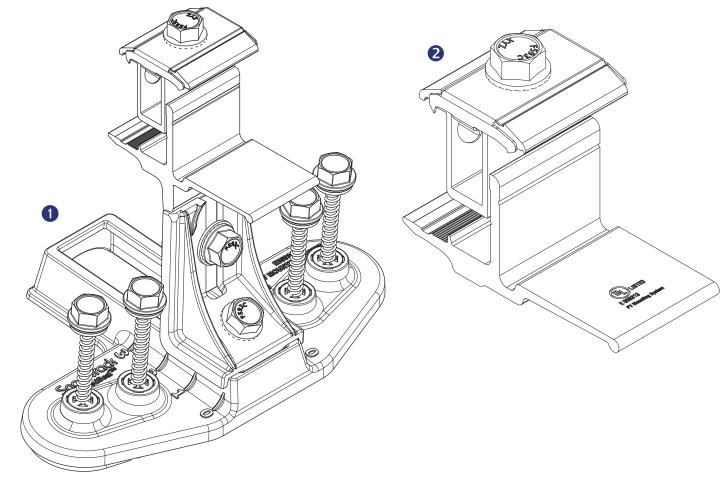
By Devon.Murtha at 9:47 am, Jul 29, 2025

Required Tools

- Socket Wrench
- Torque Wrench
- 1/2" Socket
- Roofing Sealant

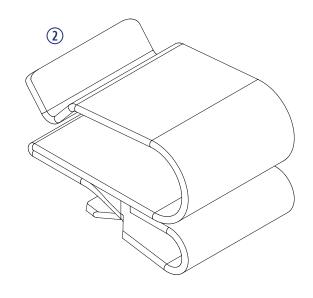
Materials Included

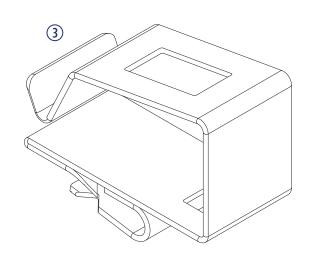
- **1** SnapNrack TopSpeed™ Mount
- 2 SnapNrack TopSpeed™ Clamp



Other Materials Required

- ② SnapNrack Smart Clip (2-5 per module)
 See Wire Management section for details
- (3) SnapNrack Smart Clip XL (10-20 per array) See Wire Management section for details





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INSTALLATION INSTRUCTIONS - BOTTOM ROW

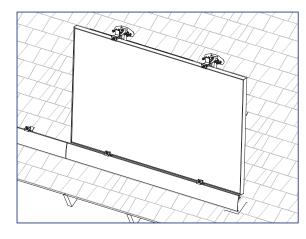
Recommended Best Practice:

Attach all TopSpeed™ mounts as the modules are being prepped with MLPEs on the ground. Attach Mounts before attaching MLPEs to simplify wire management.

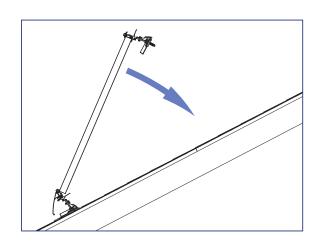
② Install Note:

It is recommended that module leads and connectors are prepared for installation using SnapNrack Smart Clips before being brought to the rooftop.

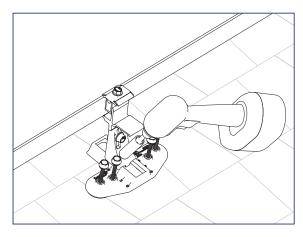
- With no MLPE, secure module leads to module frame to allow access to connectors while modules are installed
- Secure MLPE device to module frame with SnapNrack MLPE Frame Attachment Kit and connect module leads to MLPE, and manage leads by positioning connectors to allow access during installation

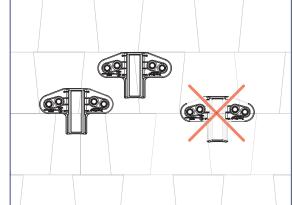


1) Rest downslope edge of module on the Mounts and/or Clamps position module so side edge is flush with marked edge of array layout or Skirt.

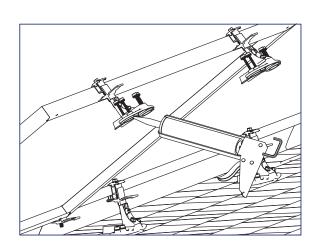


2) Lower upslope edge of module while simultaneously applying slight pressure to seat module into Mounts and/or Clamps.

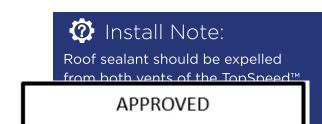




3) When module is level with roof verify the Speedseal[™] portion of the TopSpeed[™] Mounts are positioned entirely on one course of composition. If required listen the 1/2" nut and adjust the base as needed then tighten the bolt.



4) Lift the upslope edge of the module and fill the SpeedSeal™ reservoir with roofing sealant.



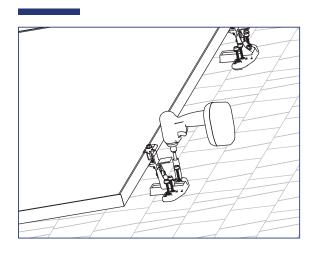
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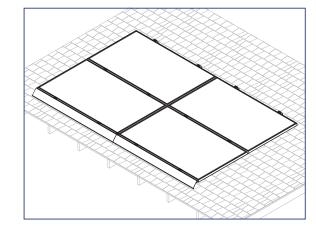
Kare Bulit

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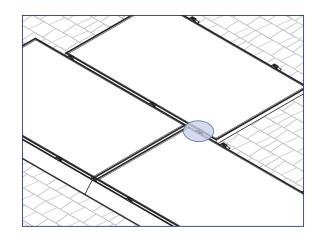
INSTALLATION INSTRUCTIONS - BOTTOM ROW



5) Lower the module to the roof and drive the (4) pre installed Snapnrack #14 Wood Screws with 1/2" hex head into the roof sheathing.



6) Repeat steps 1 through 5 for additional modules in the array.



7) For staggered arrays and arrays with mixed orientation, use the TopSpeed™ Clamp as needed to support the modules.

When installing a TopSpeed™ Clamp for support of an over cantilevered module, the clamp shall be installed 2-6" from the edge of the upslope (cantilevered) module.

🕜 Install Note:

Roof sealant should be expelled from both vents of the TopSpeed™ Mount as it is installed to assure the proper amount of roof sealant has been applied. If sealant is not expelled from both vents, remove TopSpeed™ Mount, add more sealant to the cavity, then reinstall.

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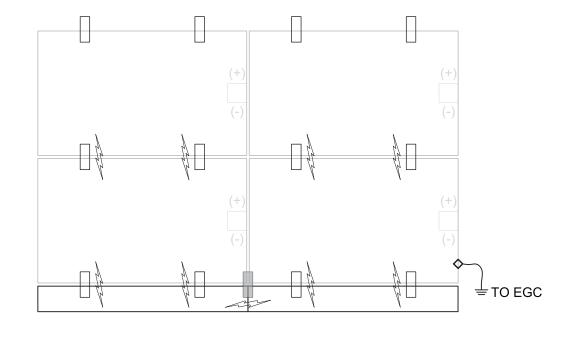
Kare Bulit

GROUND PATH DETAILS

All TopSpeed™ components in the fault current ground path have been Certified to be used multiple times for grounding/bonding. The UL 2703 Listing does not specify a maximum number of uses for the Mount, Link, or Ground Lug. Review the requirements of the National Electrical Code (NEC) Article 250 to select the appropriate Equipment Grounding Conductor size based on the short-circuit current of the PV system.

When using Ground Lug R the following components are part of the fault current ground path:

- SnapNrack, TopSpeed[™] Mount
- SnapNrack, TopSpeed[™] Clamp



GROUND PATH

EQUIPMENT GROUNDING CONDUCTOR

♦ GROUND LUG

TOPSPEED™ CLAMP

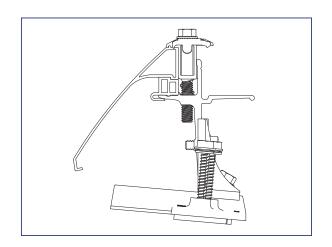
TOPSPEED™ MOUNT

ARRAY SKIRT

GROUNDING METHOD DETAILS

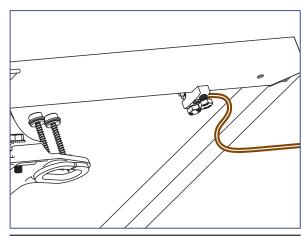


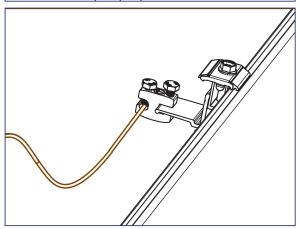
1) Row to row module bonding provided by bonding clips in Mount assembly and Clamp assembly.

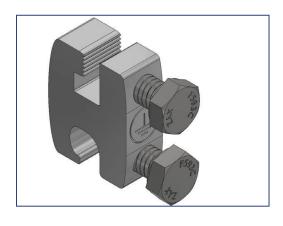


2) Column to column bonding provided by Universal Skirt and bonding clips in the Clamp assembly and/or the RL Universal Link assembly.

Module heights evaluated for bonding with Link Bonding Clamps: 40mm, 38mm, 35mm, 32mm, 30mm







GROUNDING MARKING DETAILS

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The Ground Lug is marked with the ground symbol.

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By Devon. Murtha at 9:47 am, Jul 29, 2025

Maintaining the Grounding Bonding When Removing a Module

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INSTRUCTION FOR MAINTAINING THE GROUNDING BONDING WHEN REMOVING A MODULE FOR SERVICING

CAUTION: Module removal may disrupt the bonding path and could introduce the risk of electric shock. Additional steps may be required to maintain the bonding path. Modules should only be removed by qualified persons in compliance with the instructions in this manual.

Module removal is not presented as a frequently expected occurrence and will not be required as part of routine maintenance.

Scenarios that could result in a disruption of the bonding path are described, for example irregularly-shaped arrays, arrays consisting of individual rows, and any other scenario where module removal could disrupt the bonding path. In most cases, the removal of a module for servicing will not disturb or break grounding continuity. If a module is to be removed that will break continuity, these are the steps that must be taken to maintain a continuously bonded SnapNrack TopSpeedTM System.

Required Tools

Socket Wrench

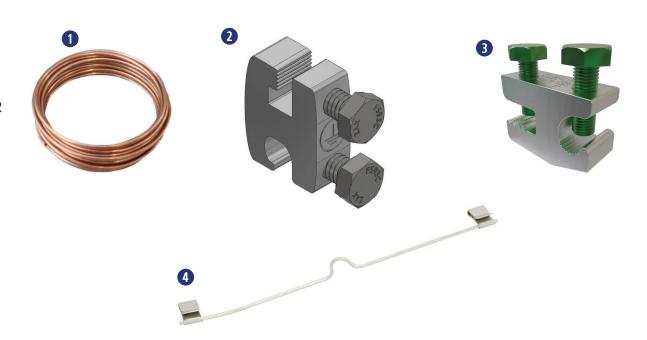
Torque Wrench

● 1/2" Socket

● 7/16" Socket

Required Materials

- 1 #10 Or Larger Bare Copper Conductor
- 2 SnapNrack Ground Lug part no. 242-92202
- 3 Ilsco Part No. SGB-4
- 4 DnoRaxx Dynobond™



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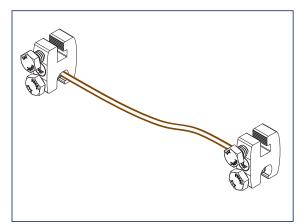
Maintaining the Grounding Bonding When Removing a Module

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JUMPER ASSEMBLY INSTRUCTION & INSTALLATION

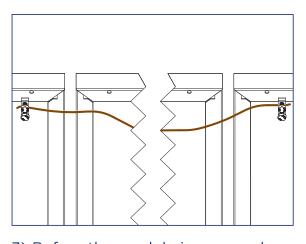
CAUTION: Do Not Remove the Module until the Jumper is installed

1) Identify the existing ground path at the location of module removal and choose an appropriate length of #10 bare copper to bridge the soon to be broken ground path.



Example of assembled bonding jumper using (2) SnapNrack Ground Lugs

- 2) Attach one ground lug to each end of #10 bare copper wire. See recommended options below:
- 1. (2) SnapNrack Ground Lug part no. 242-922022
- 2. (2) Ilsco part no. SGB-4
- 3. (1) DroRaxx DynoBond™



4) Service the array. With the bonding jumper installed, it is now safe to remove the module for service or maintenance.

5) After Servicing the array reinstall the module and original ground path. Only then Remove the bonding jumper.

Caution: Do not remove the bonding jumper until original ground path is established.

- 3) Before the module is removed, attach the assembled bonding jumper. Depending on where the module will be removed and choice of ground lug, jumper attachment locations will vary.
 - SnapNrack Ground Lug part no. 242-92202 or Ilsco SGB-4 lugs can be attached to module frames or anywhere on the TopSpeed™ Mount.
 - DynoRaxx DynoBond[™] is approved and appropriate when a short bonding jumper is needed from module to module.

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APPROVED MODULE & MLPE INFORMATION

SnapNrack TopSpeed™ System has been tested with the following UL Listed module series: The SnapNrack TopSpeed™ System employs top-down clamps and links which have been evaluated for frame-to-system bonding, at specific mounting torques and with the specific module series listed below. All wattage values are covered.

Module manufacturer approval letters can be found at www.snapnrack.com.

Manufacturer	Model				
	DNA-120-MF23-XXX	DNA-120-BF26-XXXW			
	DNA-120-BF23-XXX	DNA-144-BF26-XXXW			
	DNA-144-MF23-XXX	DNA-108-BF10-xxxW			
Aptos Solar	DNA-144-BF23-XXX	DNA-120-BF10-xxxW			
	DNA-120-MF26-XXXW	DNA-108-MF10-xxxW			
	DNA-144-MF26-XXXW				
Boviet Solar	BVM7612M-XXX-H-HC-BF-DG				
Boviet Coldi	CS6K-XXX-M	CS1H-XXX-MS			
	CS6K-XXX-M-SD	CS1H-XXX-MS-AB			
	CS6K-XXX-P	CS3W-XXX-P			
	CS6K-XXX-P-SD	CS3N-XXX-MS			
Canadian Solar	CS6K-XXX-MS	CS1Y-XXX-MS			
	CS3K-XXX-P	CS3W-MB-AG			
	CS3K-XXX-MS	CS3Y-MB-AG			
	CS3U-XXX-MS	CS6W-XXXMB-AG			
	CS3U-XXX-P	CS6R-XXXMS-HL			
	CS1K-XXX-MS	CS3W-XXX-MS			
CertainTeed	CTXXXHC11-06				
	CHSM6612M-XXX	CHSM72M-HC-XXX* (Astro 4)			
Chint Solar	CHSM6612M(BL)-XXX	CHSM72M-HC-XXX* (Astro 5)			
	CHSM6612M/HV-XXX				
	DH-M760B-XXXW	DH-M760F-XXXW			
Dehui Solar	DH-M760W-XXXW	DH-M772F-XXXW			
	DH-M772W-XXXW				
Freedom Forever	FF-MP	-BBB-xxx			
	Q.PEAK DUO-G5-XXX	Q.PEAK DUO G10-XXX			
	Q.PEAK DUO-BLK-G5-XXX	Q.PEAK DUO BLK G10-XXX			
	Q.PLUS DUO-G5-XXX	Q.PEAK DUO G10+-XXX			
	Q.PEAK DUO-G7-XXX	Q.PEAK DUO BLK G10+-XXX			
	Q.PEAK DUO-BLK-G7-XXX	Q.PEAK DUO XL-G10.3-XXX			
	Q.PEAK DUO-G7.2-XXX	Q.PEAK DUO XL-G10.c-XXX			
Hanwha Q Cells	Q.PEAK DUO-G6+-XXX	Q.PEAK DUO XL-G10.d-XXX			
	Q.PEAK DUO-BLK-G6+-XXX	Q.PEAK DUO L-G8.3/BFG-XXX			
	Q.PEAK DUO-G6-XXX	Q.PEAK DUO L-G8.3/BGT-XXX			
	Q.PEAK DUO-BLK-G6-XXX	Q.PEAK DUO ML-G10-XXX			
	Q.PEAK DUO-G8+-XXX	Q.PEAK DUO BLK ML-G10+-XXX			
	Q.PEAK DUO-BLK-G8+-XXX	Q.PEAK DUO ML-G10+-XXX			

Manufacturer Manufacturer	Mo	odel	
	Q.PEAK DUO-G8-XXX	Q.PEAK DUO BLK ML-G10-XXX	
	Q.PEAK DUO-BLK-G8-XXX	Q.PEAK DUO ML-G10.a+-XXX	
	Q.PEAK DUO BLK-G6+/AC-XXX	Q.PEAK DUO BLK ML-G10.a+-XXX	
	Q.PEAK DUO-ML-G9-XXX	Q.PEAK DUO ML-G10.a-XXX	
	Q.PEAK DUO-BLK-ML-G9-XXX	Q.PEAK DUO BLK ML-G10.a-XXX	
	Q.PEAK DUO-BLK-G9-XXX	Q.PEAK DUO BLK G10+/AC XXX	
	Q.PEAK DUO-BLK-ML-G9+-XXX	Q.PEAK DUO BLK G10+/HL XXX	
Hanwha Q Cells	Q.PEAK DUO-ML-G9+-XXX	Q.PEAK DUO BLK ML-G10+/t-XXX	
	Q.PEAK DUO-BLK-ML-G9+-XXX	Q.PEAK DUO XL-G11.3 XXX	
	Q.PEAK DUO XL-G9.2-XXX	Q.PEAK DUO XL-G11.3 BFG XXX	
	Q.PEAK DUO XL-G9.3-XXX	Q.TRON-G1+ XXX	
	Q.PEAK DUO XL-G9.3/BFG-XXX	Q.TRON BLK-G1+ XXX	
	Q.PEAK DUO XL-G10.2-XXX	Q.TRON M-G2+ XXX	
	Q.PEAK DUO XL-G10.3/BFG-XXX	Q.TRON BLK M-G2+ XXX	
HT-SAAE	HT60-166M-XXX	HT60-182M-XXX	
III SAAL	60M-XXX	72M-XXX	
Heliene	60P-XXX	72P-XXX	
	HiA-SXXXMS	HiS-SXXXYI	
"Hyundai	HiS-SXXXXY	HiS-SXXXYH(BK)	
(All may be followed by "BK")"		xXG(BK)	
	HY-DH108P8-XXX(Y)	HY-DH144N8-XXX	
Hyperion/Runergy	HY-DH144P8-XXX	HY-DH108N8-XXX	
	JAM60S09-XXX/PR	JAM72S10-XXX/PR	
	JAM60S10-XXX/MR	JAM72S12-XXX/PR	
	JAM60S10-XXX/PR	JAM60S17-XXX/MR	
JA Solar	JAM60S12-XXX/PR	JAM54S30-XXX/MR	
	JAM72S09-XXX/PR	JAM54S31-XXX/MR	
	JAM72S10-XXX/MR	JAM72D30-XXX/MB	
	JKMXXXM-60	JKMXXXP-72-V	
	JKMXXXM-60L	JKMXXXPP-72	
	JKMXXXM-60HL	JKMXXXPP-72-V	
	JKMXXXM-60HBL	JKMSXXXP-72	
	JKMXXXP-60	JKMXXXM-72HL-V	
	JKMXXXP-60-J4	JKMXXXM-72HL-TV	
Jinko Solar	JKMXXXP-60-V	JKMXXXM-72HBL	
JIIIKO JOIGI	JKMXXXP-60B-J4	JKMXXXM-72HBL JKMXXXM-6TL3-B	
	JKMXXXPP-60	JKMXXXM-6RL3-B	
	JKMXXXPP-60-V	JKMXXXM-7RL3-V	
	JKMXXXPP-00-V	JKMXXXM-7RL3-TV	
	JKMXXXM-72L-V	JKMXXXM-72HL4-V	
	JKMXXXP-72	JKMXXXM-72HL4-TV	
	LGXXXN1C-A5	LGXXXA1C-V5	
	LGXXXN1K-A5	LGXXXM1C-L5	
LG	LGXXXQ1C-A5	LGXXXMIC-L5	
	LGXXXQ1C-A5 LGXXXQ1K-A5	LGXXXMIK-L5 LGXXXN1C-N5	
	LGAAAQIK-A5	LGAAANIC-N5	

Manufacturer	Model				
	LGXXXS1C-A5	LGXXXN1K-L5			
	LGXXXN2C-B3	LGXXXN1K-A6			
	LGXXXN2W-B3	LGXXXN1C-A6			
	LGXXXN1C-G4	LGXXXN1W-A6			
	LGXXXN1K-G4	LGXXXQ1C-A6			
	LGXXXS1C-G4	LGXXXQ1K-A6			
	LGXXXN2C-G4	LGXXXM1K-A6			
	LGXXXN2K-G4	LGXXXM1C-A6			
LG	LGXXXN2W-G4	LGXXXA1C-A6			
	LGXXXS2C-G4	LGXXXQAC-A6			
	LGXXXS2W-G4	LGXXXQAK-A6			
	LGXXXN1C-V5	LGXXXN1K-B6			
	LGXXXN1W-V5	LGXXXN2W-E6			
	LGXXXN2T-V5	LGXXXN2T-E6			
	LGXXXN2T-J5	LGXXXN1K-E6			
	LGXXXN1T-V5	LGXXXN3K-V6			
	LR6-60-XXXM	LR4-60HPB-XXXM			
	LR6-60BK-XXXM	LR4-60HIB-XXXM			
	LR6-60HV-XXXM	LR4-60HPH-XXXM			
	LR6-60PB-XXXM	LR4-60HIH-XXXM			
Longi	LR6-60PE-XXXM	LR6-60HIH-XXXM			
	LR6-60PH-XXXM	LR6-60HIB-XXXM			
	LR6-60HPB-XXXM	LR4-72HPH-XXXM			
	LR6-60HPH-XXXM				
Meyer Burger	Meyer Burger Black*	Meyer Burger White*			
mSolar	TXI6-XXX120BB				
	MSEXXXSO5T	MSEXXXSQ4S			
	MSEXXXSO5K	MSEXXXSR8K			
	MSEXXXSQ5T	MSEXXXSR8T			
	MSEXXXSQ5K	MSEXXXSR9S			
Mission Solar	MSEXXXMM4J	MSE60AXXX			
Mission Solar	MSEXXXMM6J	MSEXXXSX5K			
	MSEXXXSO6W	MSEXXXSX5T			
	MSEXXXSO4J	MSEXXXSX6S			
	MSEXXXSO6J	MSEXXXSX6W			
	MSEXXXSQ6S	MSEXXXSX5R			
Novt Engrav Alliance	USNEA-XXXM3-60	USNEA-XXXM3-72			
Next Energy Alliance	USNEA-XXXM3B-60	USNEA-XXXM3B-72			
	VBHNXXXKA03	VBHXXXRA18N			
	VBHNXXXKA04	VBHXXXRA03K			
Panasonic	VBHNXXXSA17	EVPVXXX(K)			
	VBHNXXXSA18	EVPVXXXH			

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Appendix A

Manufacturer	М	odel
Dhiladalahia Calar	PS-M144(HCBF)-XXXW	PS-M108(HC)-XXXW
Philadelphia Solar	PS-M108(HCBF)-XXXW	
	PSXXXM-20/U	PSxxxM8GF-18/VH
	PSXXXMH-20/U	PSxxxM8GFH-18/VH
Phono Solar	PSxxxM8GF-24/TH	PSxxxM6-24/TH
	PSxxxM8GFH-24/TH	
	RECXXXTP2	RECXXXTP2SM 72 BLK2
	RECXXXTP2-BLK	RECXXXAA
	RECXXXNP	RECXXXTP3M
REC	RECXXXTP2M	RECXXXTP4
(All may be followed by "BLK" or	RECXXXTP2M 72	RECXXXAA Pure
"BLACK")	RECXXXTP2M 72 BLK	RECXXXAA Pure-R
	RECXXXTP2M 72 BLK2	RECXXXNP2
	RECXXXTP2SM 72	RECXXXNP3
	RECXXXTP2SM 72 BLK	
	SEG-400-BMB-HV	SEG-xxx-BMD-HV
SEG Solar	SEG-400-BMB-TB	SEG-xxx-BMD-TB
	SLAXXX-M	SILXXXNT
	SLAXXX-P	SILXXXHL
	SSAXXX-M	SILXXXBK
	SSAXXX-P	SILXXXNX
	SILXXXBL	SILXXXNU
Silfab	SILXXXML	SILXXXHC
	SILXXXNL	SILXXXHN
	SLGXXX-M	SILXXXBG
	SLGXXX-P	SIL-xxxHC+
	SSGXXX-M	SIL-xxxHM
	SSGXXX-P	
	Solaria PowerXT-XXXR-PX	Solaria PowerXT-XXXR-PM
Solaria	Solaria PowerXT-XXXR-BX	Solaria PowerXT-XXXR-PM-AC
	Solaria PowerXT-XXXR-AC	
	SPR-AXXX-G-AC	SPR-MXXX-H-AC
S	SPR-AXXX	SPR-MXXX
Sunpower	SPR-AXXX-BLK-G-AC	SPR-MXXX-BLK-H-AC
	SPR-AXXX-BLK	SPR-MXXX-BLK
CumCmark	SST-XXXM3-60	SST-XXXM3-72
SunSpark	SST-XXXM3B-60	SST-XXXM3B-72
Talaana	TP660M-XXX	TP672M-XXX
Talesun	TP660P-XXX	TP672P-XXX
	TS-BB54(XXX)	TS-BG60(XXX)
Thornova	TS-BB60(XXX)	TS-BG72(XXX)
	TS-BG54(XXX)	

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Appendix A

Manufacturer	Model				
	TSM-XXXDD05(II)	TSMXXXDD05H.05(II)			
	TSM-XXXDD05A.05(II)	TSM-XXXDD06M.05(II)			
	TSM-XXXDD05A.08(II)	TSM-XXXDE15H(II)			
	TSM-XXXDD05A.082(II)	TSM-XXXDE15M(II)			
	TSM-XXXPA05	TSMXXXDE06X.05(II)			
	TSM-XXXPA05.05	TSMXXXDE09.05			
	TSM-XXXPA05.08	TSM-XXXDE15V(II)			
Trina	TSM-XXXPD05	TSM-XXXDEG15VC.20(II)			
	TSM-XXXPD05.002	TSM-XXXDEG18MC.20(II)			
	TSM-XXXPD05.05	TSM-XXXDEG19C.20			
	TSM-XXXPD05.05S	TSM-XXXDEG21C.20			
	TSM-XXXPD05.08	TSM-XXXDE09C.05			
	TSM-XXXPD05.082	TSM-XXXDE09C.07			
	TSM-XXXPD05.08D	TSM-xxxNE09RC.05			
	TSM-XXXPD05.08S				
Vilorena Callani	SOMERA VSMHBB.60.XXX.05	PREXOS VSMDHT.60.XXX.05			
Vikram Solar	SOMERA VSMH.72.XXX.05	PREXOS VSMDHT.72.XXX.05			
VCIIN	VSUNXXX-144BMH-DG	VSUNXXX-108BMH			
VSUN	VSUNXXX-120BMH				
	ZXM6-60-XXX/M	ZXM6-NH144-XXXM			
ZNShine	ZXM6-NH120-XXXM	ZXM7-SH108-XXXM			
	ZXM7-SHLDD144-XXXM				

SnapNrack TopSpeed™ has been tested with the following Module Level Power Electronic (MLPE) devices:

SnapNrack TopSpeed[™] mounting systems has been tested with the following UL/NRTL Listed Module Level Power Electronic (MLPE) Devices. The back plates of the MLPEs have been evaluated for bonding to TopSpeed[™] through the SnapNrack MLPE Frame Attachment Kit, model 242-02151.

MLPE Manufacturer	Model			
AP Smart	RSD-S-PLC			
Celestica International	DG-006-F001201x	DG-006-F001401x		
Delta Electronics	GPI00010105			
	C250	IQ7PLUS-72-2-US		
	M215	IQ7PLUS-72-B-US		
	M250	IQ8-60		
Enphase	IQ6-60-2-US	IQ8PLUS-72		
	IQ6PLUS-72-2-US	IQ8A-72		
	IQ7-60-2-US	IQ8H-208-72		
	IQ7-60-B-US	IQ8H-240-72		
Generec	S2502			
Cinland Tasky alamias	Solis-RSD-1G			
Ginlong Technologies	Solis-MLRSD-R1-1G	Solis-MLRSD-R2-1G		

MLPE Manufacturer	Model			
	P300-5NC4ARS	P320-5NC4ARS		
	P370-5NC4AFS	P400-5NC4AFS		
	P320	P340		
	P370	P400		
	P401	P405		
SolarEdge	P485	P505		
	P730	P800p		
	P850	P860		
	P950	P1100		
	P1101	S440		
	S500			
SMA	RSB-2S-U	JS-10		
	TS4-R-F	TS4-R-M		
	TS4-R-O	TS4-R-S		
Time	TS4-R-M-DUO	TS4-R-O-DUO		
Tigo	TS4-R-S-DUO	TS4-A-F		
	TS4-A-2F	TS4-A-O		
	TS4-A-S			

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Hi-MO 5 LR5-54HPB 400~420M Suitable for distributed projects Advanced module technology delivers superior module efficiency • M10 Gallium-doped Wafer •SMBB Technology •10-busbar Half-cut Cell Excellent outdoor power generation performance Aesthetic appearance with all black module design 25-year Warranty for Materials and Processing 25-year Warranty for Extra Linear Power Output Complete System and **Product Certifications** IEC 61215, IEC 61730, UL 61730 ISO9001:2015: ISO Quality Management System ISO14001: 2015: ISO Environment Management System



ISO45001: 2018: Occupational Health and Safety

IEC62941: Guideline for module design qualification and type approval





LR5-54HPB 400~420M

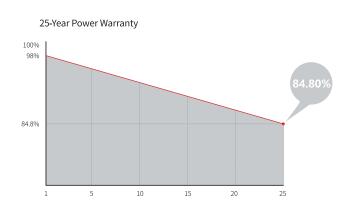
21.5%
MAX MODULE
EFFICIENCY

0~3%
POWER
TOLERANCE

<2%FIRST YEAR
POWER DEGRADATION

0.55% YEAR 2-25 POWER DEGRADATION **HALF-CELL**Lower operating temperature

Additional Value

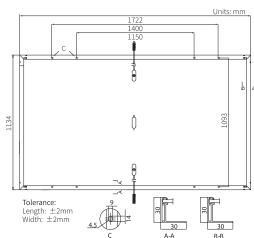


Mechanical Parameters

Mechani	Mechanicat Farameters				
Cell Orientat	ion 108 (6×18)				
Junction Box	x IP68, three diodes				
Output Cable 4mm², ±1200mm length can be customized					
Glass	Single glass, 3.2mm coated tempered glass				
Frame	Anodized aluminum alloy frame				
Weight	20.8kg				
Dimension	1722×1134×30mm				
Packaging 36pcs per pallet / 216pcs per 20' GP / 936pcs or 864pcs (Only for USA) per 40'					







Electrical Characteristics	STC:AM1	5 1000W/n	n² 25°C	NOCT : AM	1.5 800W/r	n² 20°C 1n	1/S Test un	certainty for Pmax	K: ±3%	
Module Type	LR5-54H	1PB-400M	LR5-54H	1PB-405M	LR5-54H	IPB-410M	LR5-54H	1PB-415M	LR5-54H	PB-420M
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	400	299.0	405	302.7	410	306.5	415	310.2	420	313.9
Open Circuit Voltage (Voc/V)	36.90	34.70	37.15	34.93	37.40	35.17	37.65	35.40	37.89	35.63
Short Circuit Current (Isc/A)	13.72	11.09	13.78	11.14	13.84	11.19	13.91	11.24	13.97	11.30
Voltage at Maximum Power (Vmp/V)	30.94	28.74	31.18	28.96	31.42	29.19	31.66	29.41	31.90	29.63
Current at Maximum Power (Imp/A)	12.93	10.40	12.99	10.45	13.05	10.50	13.11	10.55	13.17	10.59
Module Efficiency(%)	2	0.5	2	0.7	2	1.0	2	1.3	2.	1.5

Operating Parameters

operating rarameters		
Operational Temperature	-40°C ~ +85°C	
Power Output Tolerance	0 ~ 3%	
Voc and Isc Tolerance	±3%	
Maximum System Voltage	DC1000V (IEC/UL)	
Maximum Series Fuse Rating	25A	
Nominal Operating Cell Temperature	45±2°C	
Protection Class	Class II	
Fire Rating	UL type 1 or 2 IEC Class C	

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.265%/°C
Temperature Coefficient of Pmax	-0.340%/°C





IQ8 and IQ8+ Microinverters

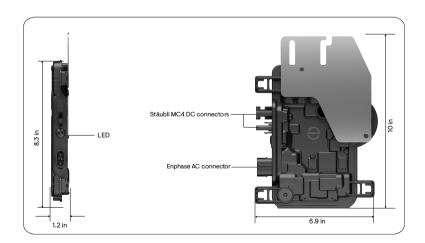
Our newest IQ8 Microinverters^{1, 2, 3} are the industry's first microgridforming⁴, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently.







Key specifications	IQ8-60-M-US	IQ8PLUS-72-M-US	
Peak output power	245 VA	300 VA	
Nominal grid voltage (L-L)	240 V, split-ph	ase (L-L), 180°	
Nominal frequency	60 Hz	60 Hz	
CEC weighted efficiency	97%	97%	
Maximum input DC voltage	50 V	60 V	
MPPT voltage range	27-37 V	27-45 V	
Maximum module I _{sc}	20 A	20 A	
Ambient temperature range	-40°C to 60°C (-40°F to 140°F)		



- ¹ IQ8 Series Microinverters can be added to existing IQ7 systems on the same IQ Gateway only in the following grid-tied configurations: Solar Only or Solar + Battery (IQ Battery 3T/10T and IQ Battery 5P) without backup.

 2 IQ7 Series Microinverters cannot be added to a site with existing IQ8 Series Microinverters on the same gateway.
- Mixed system of IO7 and IQ8 will not support IQ8-specific PCS features and grid-forming capabilities.

 3 IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative, according to the IEEE 1547 interconnection standard. Use an IQ Gateway to make these changes during installation.
- 4 Meets UL 1741 only when installed with IQ System Controller 2 or 3. 5 IQ8 and IQ8+ support split-phase, 240 V installations only.



- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple twowire cabling

(V) Reliable

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Industry-leading limited warranty of up to 25 years
- Class II double-insulated enclosure
- Optimized for the latest highpowered PV modules

Microgrid-forming

- Compliant with the latest advanced grid support⁵
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB 3rd Ed.)

Input data (DC)	Units	IQ8-60-M-US	IQ8PLUS-72-M-US	
Commonly used module pairings ⁶	W	235-350	235-440	
Module compatibility	_	To meet compatibility, PV modules must be within maximum input DC voltage and maximum module I _{sc} . Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator .		
MPPT voltage range	V	27-37	27–45	
Operating range	٧	16-48	16-58	
Minimum/Maximum start voltage	٧	22/48	22/58	
Maximum input DC voltage	٧	50	60	
Maximum continuous input DC current	Α	10	12	
Maximum input DC short-circuit current	Α	2	25	
Maximum module I _{sc}	Α	2	20	
Overvoltage class DC port	_		II	
DC port backfeed current	mA		0	
PV array configuration	_	Ungrounded array; no additional DC side protection required; AC side protection requires maximum 20 A per branch circuit.		
Output data (AC)	Units	IQ8-60-M-US	IQ8PLUS-72-M-US	
Peak output power	VA	245	300	
Maximum continuous output power	VA	240	290	
Nominal grid voltage (L-L)	V	240, split-ph	ase (L-L), 180°	
Minimum and Maximum grid voltage ⁷	V	211-	-264	
Maximum continuous output current	Α	1.0	1.21	
Nominal frequency	Hz	6	60	
Extended frequency range	Hz	47-	-68	
AC short-circuit fault current over three cycles	Arms		2	
Maximum units per 20 A (L-L) branch circuit ⁸	-	16	13	
Total harmonic distortion	%		:5	
Overvoltage class AC port	_		III	
AC port backfeed current	mA	3	30	
Power factor setting	_	1.0		
Grid-tied power factor (adjustable)	_	0.85 leading 0.85 lagging		
Peak efficiency	%	9:	7.7	
CEC weighted efficiency	%	Ş	97	
Nighttime power consumption	mW	23	25	
Mechanical data		IQ8-60-M-US	IQ8PLUS-72-M-US	
Ambient temperature range		-40°C to 60°C	(–40°F to 140°F)	

⁶ No enforced DC/AC ratio.
7 Nominal voltage range can be extended beyond nominal if required by the utility.
8 Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

Mechanical data	IQ8-60-M-US	IQ8PLUS-72-M-US		
Relative humidity range	4% to 100%	(condensing)		
DC connector type	Stäub	oli MC4		
Dimensions (H × W × D)	212 mm (8.3 in) × 175 mm	(6.9 in) × 30.2 mm (1.2 in)		
Weight	1.1 kg (2.43 lb)		
Cooling	Natural convection—no fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure			
Environmental category/UV exposure rating	NEMA Type	6/Outdoor		
Compliance	IQ8-60-M-US	IQ8PLUS-72-M-US		
Certifications	15 Class B, ICES-0003 Class B This product is UL Listed as PV rapid sl NEC 2014, NEC 2017, NEC 2020, and Ne Rule 64-218 rapid shutdown of PV syst	E 1547:2018 (UL 1741-SB 3 rd Ed.), FCC Part 5, CAN/CSA-C22.2 NO. 107.1-01. In the nutdown equipment and conforms with EC 2023 section 690.12 and C22.1-2018 tems, for AC and DC conductors, when manufacturer's instructions.		

Components of the Enphase Energy System



IQ Battery

All-in-one AC-coupled storage solution that integrates seamlessly with your solar energy system, providing reliable backup power and intelligent energy management for maximum performance and energy savings.



IQ System Controller

The IQ System Controller connects the home to the grid power, IQ Batteries, generator and solar PV with microinverters.



IQ Combiner/IQ Gateway

The IQ Combiner/IQ Gateway is a device that performs energy management, provides internet connectivity, and integrates with the IQ Series Microinverters to provide complete control and insights into the Enphase Energy System.



IQ Cable

The IQ Cable is a continuouslength 12-AWG cable with pre-installed connectors for IQ Microinverters that support faster, simpler, and more reliable installations. The cable is handled like standard outdoorrated electrical wire, allowing it to be cut, spliced, and extended as needed.

Revision history

Revision	Date	Description
DSH-00206-4.0	December 2024	Updated information on backward compatibility with IQ7 Series Microinverters.
DSH-00206-3.0	February 2024	Updated the information about IEEE 1547 interconnection standard requirements.
DSH-00206-2.0	October 2023	Included NEC 2023 specification in the "Compliance" section.
DSH-00206-1.0	September 2023	Initial release.



DAVID C. HERNANDEZ,

513-418-8812

4912 Prospect Ave., Blue Ash OH 45242



davehernandezpe@gmail.com



DATE: July 15, 2025

RE: 68 Walnut Ave, Takoma Park, MD 20912, USA

To Whom It May Concern,

As per your request, Exactus Energy has inspected the structure and has conducted a structural assessment of the building at the above address.

PV solar panels are proposed to be installed on roof areas as shown in the submitted plans. The panels are clamped and attached to the roof decking with a rail-less mounting system. The PV system (PV modules, racking, mounting hardware, etc.) shall be installed according to the manufacturer's approved installation specifications. The Engineer of Record and Exactus Energy claim no responsibility for misuse or improper installation.

It was found that the roof structures satisfactorily meet the applicable standards included in the 2021 IBC/IRC and ASCE 7-16 as well as the design criteria shown below:

Design Criteria:

Risk Category = 11 **Exposure Category** = B

Wind speed = 115 mphGround snow load = 30 psfRoof dead load = 12 psfSolar system dead load = 3 psf

Overall, the roof area is structurally adequate to support the PV.

This letter was completed in accordance to recognized design standards, professional engineering experience, and judgement. Prior to installation, the on-site contractor must notify Exactus Energy if there are any discrepancies, or damages to the members, that was not addressed in the plan set.

If you have any further questions, please do not hesitate to contact me.

Acknowledged by:

Engineer: David C. Hernand Engineer: David C. Hernand Dav

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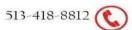
Historic Preservation Commission

REVIEWED

By Devon. Murtha at 9:48 am, Jul 29, 2025



DAVID C. HERNANDEZ, PE





4912 Prospect Ave., Blue Ash OH 45242



davehernandezpe@gmail.com



SEISMIC CHECK

Breakdown of Loads		
Asphalt Shingles:	7	psf
Insulation:	1.5	psf
Plywood Sheathing:	1.5	psf
Rafters:	1	psf
Misc:	1	psf
Live load:	20	psf

Existing Roof Seismic Weight					
	Unit Weight	Area	Weight		
Element	(psf)	(Sq.ft)	(lbs)		
Roof DL	12	1435.00	17220		
Exterior Walls	8	2399.36	19194.88		
Interior Walls	6	2399.36	14396.16		
Existing Se	50811.04				

New PV System Seismic Weight					
	Unit Weight	Area		Weight	
Element	(psf)	(Sq.ft)		(lbs)	
Pv System	3		210.20		630.60
Seismic Weight of New PV System, Wpv = 630.60				630.60	

% Increase in Lateral (Seismic) Weight @Roof Level Due to PV System Addition, %-increase = Wpv / We 1.24% < 10% - Pass

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By Devon.Murtha at 9:48 am, Jul 29, 2025



COMPANY

PROJECT

July 15, 2025 12:53

68 Walnut Ave-Roof 1.wwb

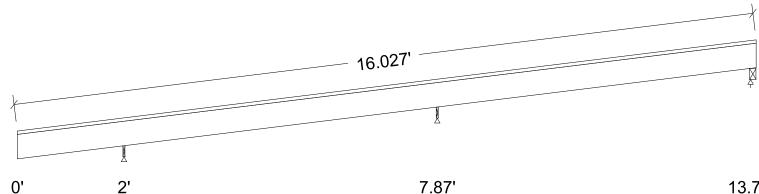
Design Check Calculation Sheet

WoodWorks Sizer 13.2.1

Loads:

Load	Type	Distribution	Pat-	Location [ft]	Magnitude	Unit
			tern	Start End	Start End	
D-ROOF	Dead	Full Area	No		12.00(24.0")	psf
S1	Snow	Partial Area	No	0.00 1.83	23.10(24.0")	psf
L1	Roof live	Partial Area	No	0.00 1.83	20.00(24.0")	psf
S-PV	Snow	Partial Area	No	1.83 12.07	15.48(24.0")	psf
D-PV	Dead	Partial Area	No	1.83 12.07	3.00(24.0")	psf
L2	Roof live	Partial Area	No	12.07 13.74	20.00(24.0")	psf
S2	Snow	Partial Area	No	12.07 13.74	23.10(24.0")	psf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in):



	0'	2'	7.87'	13.74'	
Unfactored:		140	220	7	
Dead		149	229	7 9	
Snow		178 84	203	5	
Roof Live		04	-2] 3	8
Factored: Total		327	432	17	
Bearing:		327	432		
F'theta		518	518	51	2
Capacity			310		٦
Joist		680	680	116	6
Support		398	586	119	
Des ratio					
Joist		0.48	0.64	0.1	5
Support		0.82	0.74	0.1	
Load comb		#3	#3	#	
Length		0.50*	0.50*	1.5	0
Min req'd		0.50*	0.37**	0.50	*
Cb		1.75	1.75	1.0	0
Cb min		1.75	1.75	1.0	
Cb support		1.25	1.25	1.2	
Fcp sup		425	625	42	5

^{*}Minimum bearing length setting used: 1/2" for end supports and 1/2" for interior supports

Lumber-soft, S-P-F, No.1/No.2, 2x6 (1-1/2"x5-1

Supports: 1,3 - Lumber-soft Beam, S-P-F No.1/No.2; 2 - Timber-soft B Roof joist spaced at 24.0" c/c; Total length: 16.29'; Clear span(horz): 1.979', 5.828', 5.8

7/12

Lateral support: top = continuous, bottom = at end supports; Repetitive factor: applied w help);

This section PASSES the design code check.

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Kare Bulit

REVIEWED

By Devon.Murtha at 9:48 am, Jul 29, 2025

^{**}Minimum bearing length governed by the required width of the supporting member.

WoodWorks® Sizer

SOFTWARE FOR WOOD DESIGN

68 Walnut Ave-Roof 1.wwb

WoodWorks® Sizer 13.2.1

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2018:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 33	Fv' = 155	psi	fv/Fv' = 0.21
Bending(+)	fb = 285	Fb' = 1504	psi	fb/Fb' = 0.19
Bending(-)	fb = 395	Fb' = 923	psi	fb/Fb' = 0.43
Deflection:				
Interior Live	0.02 = < L/999	0.34 = L/240	in	0.07
Total	0.05 = < L/999	0.45 = L/180	in	0.11
Cantil. Live	0.03 = L/923	0.23 = L/120	in	0.13
Total	0.02 = < L/999	0.31 = L/90	in	0.08

Additional Data:

```
FACTORS: F/E(psi) CD
                         CM
                                Ct
                                      CL
                                             CF
                                                   Cfu
                                                           Cr
                                                                Cfrt
                                                                       Ci
                                                                             LC#
 Fv'
           135
                  1.15
                        1.00
                               1.00
                                                                1.00
                                                                      1.00
                                     1.000 1.300
 Fb'+
           875
                  1.15
                        1.00
                               1.00
                                                          1.15
                                                                1.00
                                                                      1.00
                                                                              3
           875
                  1.15
                        1.00
                                    0.613 1.300
                                                         1.15
                                                                      1.00
                                                                              3
 Fb'-
                               1.00
                                                                1.00
 Fcp'
           425
                        1.00
                               1.00
                                                                1.00
                                                                      1.00
                                                                               3
           1.4 million
                              1.00
                                                                1.00
                                                                      1.00
 Ε'
                        1.00
                                                                      1.00
                                                                               3
          0.51 million
                        1.00
                              1.00
                                                                1.00
 Emin'
```

CRITICAL LOAD COMBINATIONS:

```
: LC \#3 = D + S
Shear
Bending(+): LC \#3 = D + S
Bending(-): LC #3
                  = D + S
Deflection: LC \#3 = D + S
                             (live)
            LC #3 = D + S
                             (total)
Bearing
          : Support 1 - LC \# 3 = D + S
            Support 2 - LC #3 = D + S
            Support 3 - LC \# 3 = D + S
Load Types: D=dead S=snow Lr=roof live
```

Load combinations: ASD Basic from ASCE 7-16 2.4; all LC's listed in the Analysis report

```
CALCULATIONS:
V \max = 205, V \text{ design} = 181 \text{ (NDS 3.4.3.1(a)) lbs}
M(+) = 179 \text{ lbs-ft}; M(-) = 249 \text{ lbs-ft}
EI = 29.12e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow...)
Total deflection = 1.50 permanent + "live"
Bearing: Allowable bearing at an angle F'theta calculated for each support
as per NDS 3.10.3
Lateral stability(-): Lu = 13.56' Le = 20.94' RB = 24.8; Lu based on full span
```

Design Notes:

- 1. Analysis and design are in accordance with the ICC International Building Code (IBC 2021) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Continuous or Cantilevered Beams: NDS Clause 4.2.5.5 requires that normal grading provisions be extended to the middle 2/3 of 2 span beams and to the full length of cantilevers and other spans.
- 4. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
- 5. SLOPED BEAMS: level bearing is required for all sloped beams.
- 6. The critical deflection value has been determined using maximum back-span deflection. Cantilever deflections do not govern design.

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ASCE 7 - 16 WIND CALCULATION FOR: Roof 1 Project Address: 68 Walnut Ave, Takoma Park, MD 20912, USA

DESIGN CRITERIA

Ultimate Wind Speed: 115 mph Array Edge Factor, γE: 1

Exposure Category: B Solar Array Dead Load: 3.4 psf

a: 3 ft Mean Roof Height: 20 ft

Velocity Pressure Exposure Coefficient, *Kz*: 0.62 Roof Pitch: 30°

Topographic Factor, *Kzt*: 1 Roof Type: Gable

Wind Directionality Factor, Kd: 0.85 Module Name, Dimensions, Area: LONGi LR5-54HPB-405M,

Ground Elevation Factor, Ke: 1 44.6in X 67.8in, 3023.88 sqin

Solar Array Pressure Equalization Factor, ya: 0.7 / 0

CALCULATION

Velocity Pressure Due to Wind: $q_h = 0.00256(Kz)(Kzt)(Kd)(I)(V^2)$ (Ch 26. Eq 26.10 - 1) Actual Uplift Pressure: p = 0.6D + 0.6W (Ch 2.4.1 LC #7/a) Wind Uplift Pressure: p = qh (GCp)(yE)(ya) (Ch 29. Eq 29.4 - 7)

Landscape / Portrait Panels

Roof Zone	1	2e	2n	2r	3e	3r
Mount Spacing	67.8"	67.8"	67.8"	67.8"	67.8"	67.8"
External Pressure Coefficient (GCp)	-1.78	-1.78	-1.98	-1.78	-2.47	-1.98
Actual Uplift Pressure (p)	-16 psf	-16 psf	-16 psf	-16 psf	-16.8 psf	-16 psf
Tributary Area (AT)	10.5 sqft					
Uplift Force (P)	-167.99 lbs	-167.99 lbs	-167.99 lbs	-167.99 lbs	-176.39 lbs	-167.99 lbs

Uplift Capacity

Attachment Type = 4 1/4" Wood Screw 0.75" TopSpeed Mount Hardware Pullout Capacity = 260 lbs

Assembly Safety Factor = 3

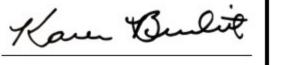
Maximum Uplift Force = 176.394 lbs
Allowable Pullout Capacity = 260 lbs

Allowable Pullout Capacity = 260 lbs > Uplift Force per Bolt = 176.39 lbs, Therefore OK.

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Solar Energy World Because Tomorrow Matters

Project_Roof Mounted Solar PV Installation_Property Owner	/incent Verweij
Address 68 Walnut Ave, Takoma Park, MD 20912, USA	
for the mounting equipment and panel mounting assembly (the above referenced address. I certify that the configurations
The attachment of the rack system to the building at the a attachment points; the number of fasteners per attachment prinimum embedment into structural framing, etc.) meets the Montgomery County in COMCOR 08.00.02.	point; and the specific type of fasteners (size, diameter, length,
I evaluated the existing roof structure of the building at the additional loads imposed by the PV system. I certify that no required. The existing roof structure meets the standards and COMCOR 08.00.02, necessary to support the PV system.	* * * * * * * * * * * * * * * * * * * *
* · · · · · · · · · · · · · · · · · · ·	difications of the existing roof structure are required. I certify sproject, will support the additional loads imposed by the PV
I prepared or approved the construction documents for the project.	ne mounting equipment, rack system, roof structure for this
Re-installations: I certify that the reinstallation of the photovoltaic system (show original permit #) does not alter the a to the building, and roof framing unsafe.	(PV) as shown on the approved drawings for permit approval under the permit or make the PV system, attachment
49993 Maryland PE License Number	Circuit Budding Erginer 1982
Date <u>07/15/2025</u>	Seal Seal

Signature Engineer: David C. Helle Paris de 26:26:15-04:00

REVIEWEDBy Devon.Murtha at 9:48 am, Jul 29, 2025

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Historic Preservation Commission

PROFESSIONAL CECERTIFY THAT TO PREPARED OR APPLAM A DULY LENGINEER UNDER TO MARYLAND, LICENSE



Property Owners Name:	
Property Owners Address:	
Address of installation if different than owner's address:	

I certify that:

- o I prepared or approved the electrical drawings and related documents for the photovoltaic (PV) system at the above location.
- o The design of the PV system, and all electrical Installations and equipment, meets the standards and requirements of the National Electrical Code as adopted by Montgomery County in COMCOR 17.02.01.
- o I reviewed and completed the Worksheet for PV System, which was attached to the permit application for the PV system at the above location.

15732	
State Master E	lectrician License Number
Date:	
Signature:	Matt Hum

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Montgomery County

Historic Preservation Commission

By Devon. Murtha at 9:48 am, Jul 29, 2025



DEPARTMENT OF PERMITTING SERVICES

Marc Elrich
County Executive

Rabbiah Sabbakhan *Director*

HISTORIC AREA WORK PERMIT APPLICATION

Application Date: 7/19/2025

Application No: 1125998

AP Type: HISTORIC Customer No: 1408761

Affidavit Acknowledgement

The Contractor is the Primary applicant authorized by the property owner This application does not violate any covenants and deed restrictions

Primary Applicant Information

Address 68 WALNUT AVE

TAKOMA PARK, MD 20912

Othercontact Solar Energy World (Primary)

Historic Area Work Permit Details

Work Type ALTER

Scope of Work INSTALL (10) ROOF MOUNTED SOLAR PANELS, 4.05 KW