Date: February 25, 2021

MEMORANDUM

TO: Mitra Pedoeem
Department of Permitting Services
FROM: Michael Kyne
Historic Preservation Section
Maryland-National Capital Park & Planning Commission
SUBJECT: Historic Area Work Permit #917166: Solar panel installation

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The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** at the September 23, 2020 HPC meeting.

The HPC staff has reviewed and stamped the attached construction drawings**.**

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: Takoma Park Presbyterian Church **(Jill Feasley, Agent)**
Address: 310 Tulip Avenue, Takoma Park

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 Michael Kyne at 301.563.3403 or michael.kyne@montgomeryplanning.org to schedule a follow-up site visit.

REVIEWED
By Michael Kyne at 5:44 pm, Feb 25, 2021

APPROVED
Montgomery County
Historic Preservation Commission

Sandra A. Heiler

COMPACT**FLAT S05**

AERODYNAMIC. STABLE. INTELLIGENT.

Compact and tested substructure for the single-sided stand-mounting of PV modules on flat roofs

The system, as part of the COMPACT**FLAT** product range, is an aerodynamic south-facing substructure for the fixing of framed PV modules on flat roofs. It is available at an incline of 5° and with different row spacing. No additional components are necessary for reducing the clearance between the modules. With the smallest row spacing, the amount of empty space is reduced considerably, and the system offers more installed modules – meaning more performance and yield – per unit area.

AEROCOMPACT®

The aerodynamic design boasts exceptional structural properties and requires considerably less ballast than other systems on the market. Due to the special “spring effect” of the feet, the substructure adjusts optimally to the conditions of the surface structure. Since the design is not rail-bound, water drainage is [illegible].

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Like the COMPACT**FLAT S10+**, the COMPACT**FLAT S05** also has a 25-year warranty, has been wind tunnel-tested, TÜV-certified in line with UL 2703, and is supplied with a pre-installed building protection mat. With special loading tests, all variants were tested and approved by TÜV Rheinland in accordance with UL 2703, as well as a fire test in line with UL 703. The wire management solution for the string-wiring of module rows is UL-certified and available as an accessory with the substructure.

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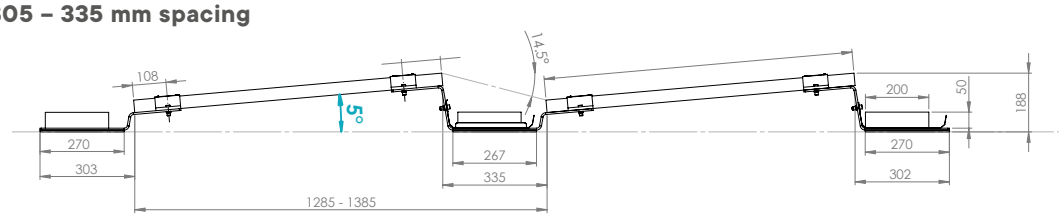
The COMPACT**FLAT S05** is stored in our 3D engineering software AEROTOOL. The AEROCOMPACT® customer center is able to issue clear and competent project reports based on empirical data (wind load, snow load, structural analysis).

The COMPACT**FLAT S05** is delivered partly pre-assembled, including a newly developed building protection mat – with long-term durability testing.

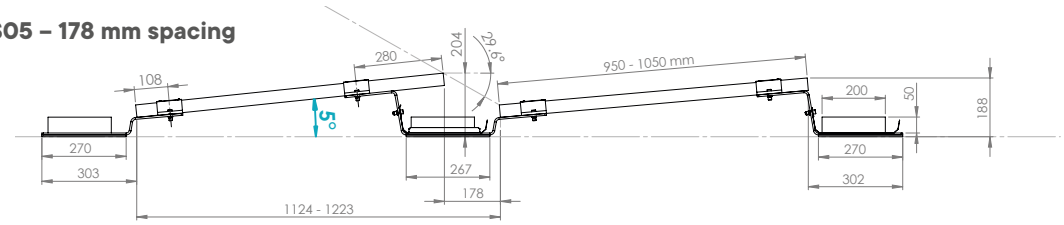
This system version with ballast trays is primarily used in areas with high wind loads and on roofs with a low point-loading capacity. The key advantages of this installation version are the extra ballast which can be installed for each module on the one hand, and the even distribution of point loads on the roof surface on the other. The ballasttray can also be deployed if roof graveling is used as ballast. The gravel is then filled in the plate tray for weight.

With only three main components, the COMPACT**FLAT S05** achieves an exceptional price-performance ratio. In addition to the attractive system price, the simple installation and high transport density of the innovative system saves time and resources.

S05 – 335 mm spacing

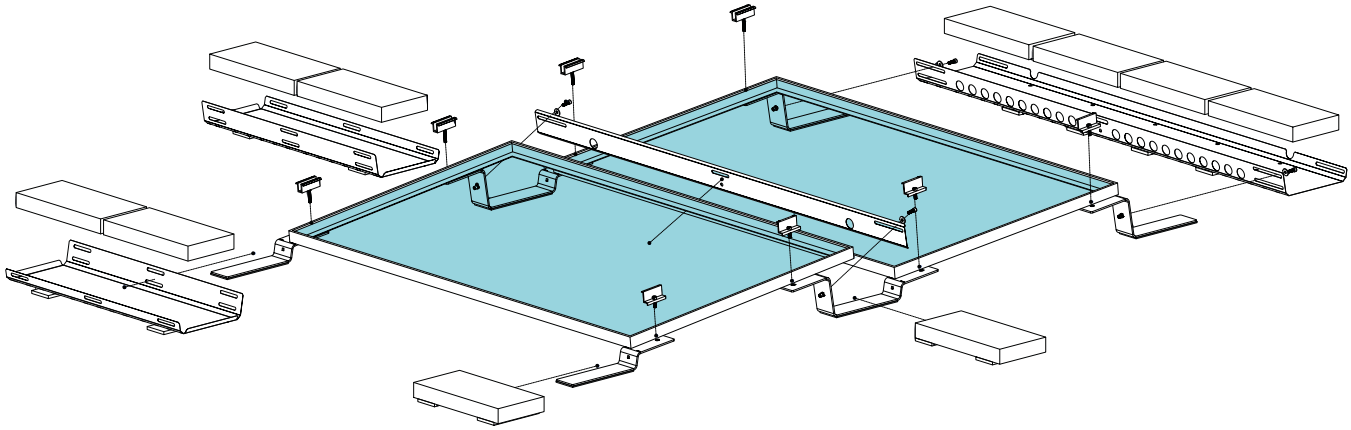


S05 – 178 mm spacing



TECHNICAL DATA

Description	Aerodynamic installation system for the stand-mounting of framed PV modules on flat roofs.
Scope of use	On foil and bitumen roofs with and without heat insulation beneath the sealing, a[illegible] roofs; can be adapted for gravel and green roo[illegible]
Module dimensions	950–1,050 m[illegible]
Installation angle	5°, unilateral
Row spacing	COMPACT**FLAT S05** (15° internal shading angle): 335 mm COMPACT**FLAT S05** (30° internal shading angle): 178 mm
Distance from the roof surface / floor surface	Approx. 60 mm; potentially less on gravel roof
Distance from roof edge	1,200 mm (less corner spacing upon request); roof areas F and G as per EN 1991-1-4 can be covered
Max. building height	25 m (adapted for taller buildings upon request)
Max. roof pitch	Up to 5° possible without roof anchors; above 5° only with roof anchors
Max. field size	12 x 10 rows; 120 modules
Min. field size	1 rows for every 2 modules
Wind load	Suction load up to 2.4 kN/m²
Snow load	Pressure load of COMPACT**FLAT S05** Standard up to 2.4 kN/m² Pressure load of COMPACT**FLAT S05** Alpin up to 4.4 kN/m²
Design/stability verification	Software-supported based on wind tunnel analyses
On-site requirements	Sufficient structural load-bearing capacity of the roof structure and the building's supporting structure, as well as adequate compressive strength of the roof structure, must be ensured on site. The general terms and conditions, terms of warranty, and the user agreement apply.
Module approval	The list of approved modules is provided by AEROCOMPACT®; individual approvals through the module manufacturer
Components	Module clamps with grounding pins, flat-roof brackets, wind deflector plates, ballast stones; optional lateral plates, ballast trays, roof anchors
Materials	Bearing connecting parts made from aluminum EN AW 6060 T64; module clamps made from aluminum EN AW 6063 T66; screws made from stainless steel A2–70; wind deflector plates and ballast trays made from steel with aluminum–zinc coating; building protection mat made from polyester fleece



- Module clamps with integrated grounding pins
- No roof penetration necessary
- Also suitable for roof edge areas
- Main structure produced from aluminum and stainless steel
- Water drainage provided on all sides
- Optimum module ventilation
- Pre-installed building protection mat
- 700 kWp per truck or 40-foot container
- Minimum order quantity only 2 kWp
- Quickest installation: 1 kWp / 5 min. / 2 people
- Optimized wind suction openings
- Low transport costs
- Fire-tested as per UL 1703
- TÜV-certified as per UL 2703
- Wind tunnel-tested
- Engineered in Europe
- General building inspectorate approval applied for
- 25 years product warranty

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Montgomery County
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< Scan QR code to watch installation video

PB-S05-EN-EU-V01-2019

AEROCOMPACT®

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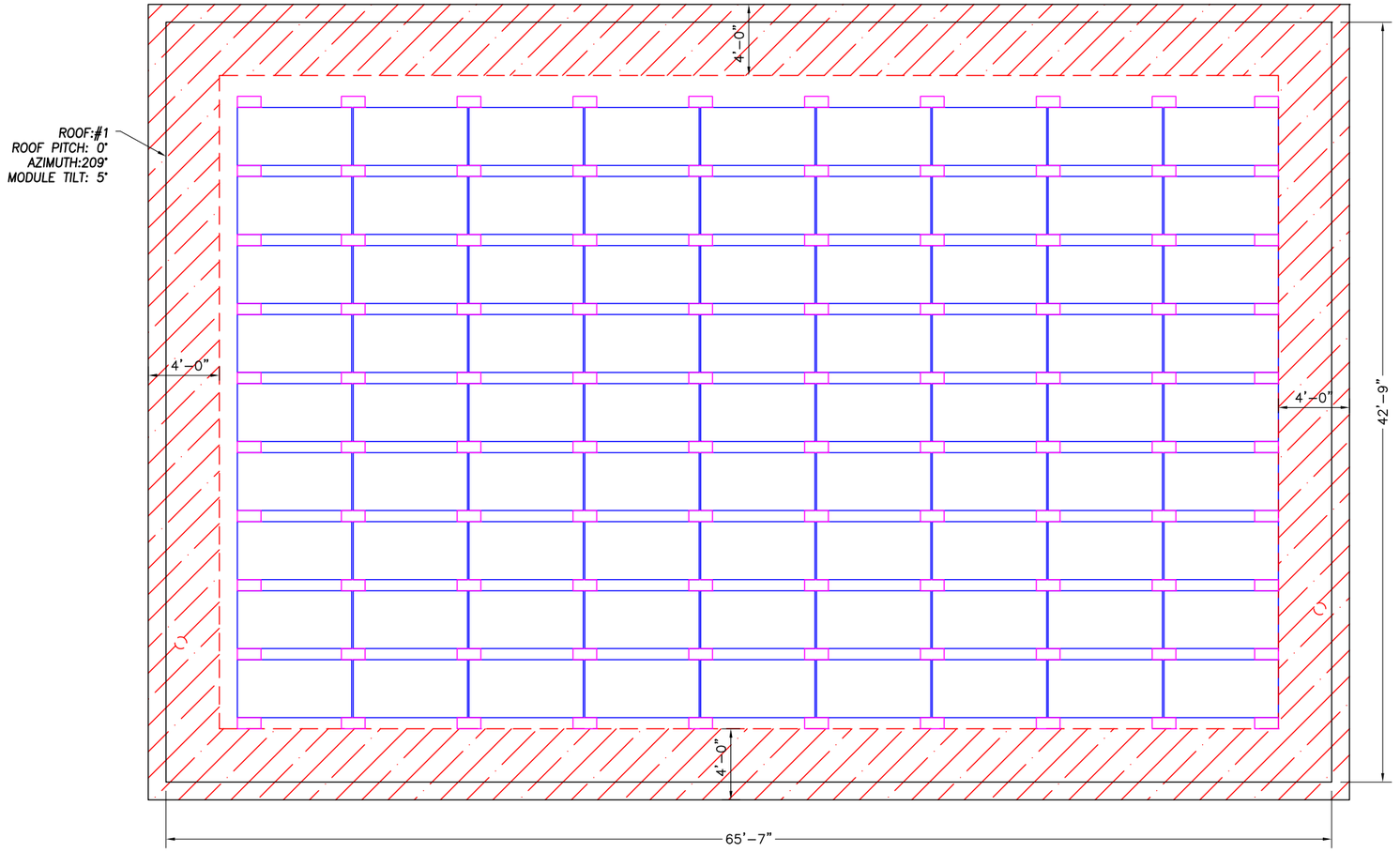
www.aerocompact.com



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Sandra A. Heiler

KEY

FIRE SAFETY ZONE

SOLAR PANEL LAYOUT
Scale: 1/8" =1'-0"

NOTES:
1. THE SYSTEM SHALL INCLUDE [81] Canadian Solar CS6U-340M SOLAR MODULES.
2. AEROCOMPACT 5° WILL BE INSTALLED IN ACCORDANCE WITH AEROCOMPACT INSTALLATION MANUAL.
3. DIMENSIONS MARKED (*) ARE ALONG ROOF SLOPE.
4. REFER TO STRUCTURAL DRAWING FOR SECTIONS MARKED AND ADDITIONAL NOTES.

PROPOSED PV ARRAY LOCATION

SolarEnergyWorld
Because Tomorrow Matters
Solar Energy World LLC.
5681 Main Street
Elkridge, MD 21075
(888) 497-3233

Stamp

*STAMPED AND SIGNED FOR STRUCTURES ONLY

Revisions

REV	DESCRIPTIONS	BY	DATE
01	--------	--	--

Plotter: Gordon Allen on 8/27/2020 4:17 PM

Project Name and Address
Takoma Park Presbyterian
310 Tulip Drive
Takoma Park, MD 20912
27.540 kW

Drawn by: Hunter Smith
Date: 15-JULY-2020
Scale: AS NOTED
Sheet: A001

SolarEdge Three Phase Inverters for the 208V Grid for North America

SE9KUS / SE14.4KUS

REVIEWED

By Michael Kyne at 5:44 pm, Feb 25, 2021

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The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Integrated arc fault protection for NEC 2011 690.11
- Rapid shutdown for NEC 2014 690.12
- Outdoor and indoor installation
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Small, lightweight and easy to install on provided bracket
- Fixed voltage inverter, DC/AC conversion only
- Integrated Safety Switch

Three Phase Inverters for the 208V Grid for North America

SE9KUS / SE14.4KUS[1]

	SE9KUS	SE14.4KUS	
OUTPUT			
Rated AC Power Output	9000	14400	VA
Maximum AC Power Output	9000	14400	VA
AC Output Line Connections	4-wire WYE (L1-L2-L3-N) plus PE or 3 wire Delta		
AC Output Voltage Minimum-Nominal-Maximum[2] (L-N)	105-120-132.5		Vac
AC Output Voltage Minimum-Nominal-Maximum[2] (L-L)	183-208-229		Vac
AC Frequency Min-Nom-Max[2]	59.3 - 60 - 60.5		Hz
Max. Continuous Output Current (per Phase)	25	40	A
GFDI Threshold	1		A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
INPUT			
Maximum DC Power (Module STC)	12150	19400	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC to Gnd	250	300	Vdc
Maximum Input Voltage DC+ to DC-	500	600	Vdc
Nominal Input Voltage DC to Gnd	200		Vdc
Nominal Input Voltage DC+ to DC-	400		Vdc
Maximum Input Current		38	Adc
Max. Input Short Circuit Current	45		Adc
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	1	350kΩ Sensitivity	
CEC Weighted Efficiency	96.5	97	%
Night-time Power Consumption	< 3	< 4	W
ADDITIONAL FEATURES			
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional)		
Rapid Shutdown – NEC 2014 690.12	Manual Rapid Shutdown[4]	Automatic Rapid Shutdown upon AC Grid Disconnect[5]	
STANDARD COMPLIANCE			
Safety	UL1741, UL1699B, UL1998, CSA 22.2		
Grid Connection Standards	IEEE1547		
Emissions	FCC part15 class B		
INSTALLATION SPECIFICATIONS			
AC output conduit size / AWG range	3/4" minimum / 12-6 AWG		
DC input conduit size / AWG range	3/4" minimum / 12-6 AWG		
Number of DC inputs	2 pairs	3 pairs (with fuses on plus & minus)[6]	
Dimensions (HxWxD)	21 x 12.5 x 10.5 / 540 x 315 x 260		in/mm
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 10.5 / 775 x 315 x 260		in/mm
Weight	73.2 / 33.2	99.5 / 45	
Weight with Safety Switch	79.7 / 36.2	106 / 48	
Cooling	Fans (user replaceable)		
Noise	< 50	< 55	dBA
Operating Temperature Range	-40 to +140 / -40 to +60		˚F/˚C
Protection Rating	NEMA 3R		

[1] For 277/480V inverters refer to: http://www.solaredge.com/files/pdfs/products/inverters/se-three-phase-us-inverter-datasheet.pdf
[2] For other regional settings please contact SolarEdge support
[3] Where permitted by local regulations
[4] With installation of rapid shutdown kit; contact SolarEdge for kit P/N
[5] P/N of inverter with automatic rapid shutdown: SE14.4K-USR28NNF4
[6] Field replacement kit for 1 pair of inputs P/N: DCD-3PH-1TBK

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RoHS

Power Optimizer

Frame-Mounted Module Add-On for Commercial Installations for North America

P730

POWER OPTIMIZER

25 YEAR WARRANTY

REVIEWED

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Sandra L. Heiler

Fast mount power optimizers with module-level optimization

- Quicker installation - Power optimizers can be mounted in advance saving installation time
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Next generation maintenance with module level monitoring
- Compliant with arc fault protection and rapid shutdown NEC requirements (when installed as part of the SolarEdge system)
- Module-level voltage shutdown for installer and firefighter safety

Power Optimizer

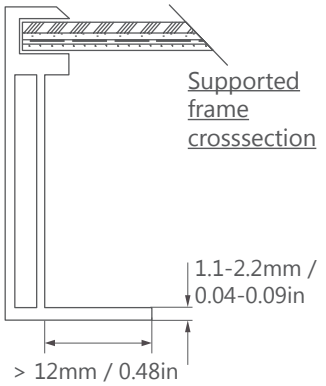
Frame-Mounted Module Add-On for Commercial Installations for North America P730

Optimizer model (typical module compatibilty)	P730[1] (for 2 x high power 72-cell modules)	
INPUT		
Rated Input DC Power[2]	730	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	125	Vdc
MPPT Operating Range	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	11	Adc
Maximum DC Input Current	13.75	Adc
Maximum Efficiency	99.5	%
Weighted Efficiency	98.6	%
Overvoltage Category	II	
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)		
Maximum Output Current	15	Adc
Maximum Output Voltage	85	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)		
Safety Output Voltage per Power Optimizer	1 ± 0.1	Vdc
STANDARD COMPLIANCE		
Photovoltaic Rapid Shutdown System	NEC 2014	
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3	
Safety	IEC62109-1 (class II safety)	
Material	UL94 V-0, UV Resistant	
RoHS	Yes	
INSTALLATION SPECIFICATIONS		
Compatible SolarEdge Inverters	Single Phase and Three Phase	
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	139 x 165 x 62 / 5.5 x 6.5 x 2.4	mm / in
Weight (including cables)	1185 / 2.6	gr / lb
Input Connector	MC4[3]	
Input Wire Length	0.16 / 0.52	m / ft
Output Wire Type / Connector	Double Insulated / MC4	
Output Wire Length	0.16 / 0.52	m / ft
Operating Temperature Range[4]	-40 - +85 / -40 - +185	°C / °F
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 - 100	%

[1] P730 replaced the P700. They can be used interchangeably and can be connected in the same sring.
[2] Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
[3] For other connector types please refer to: https://www.solaredge.com/sites/default/files/optimizer-input-connector-compatibility.pdf
[4] For ambient temperature above +70˚C / +158˚F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Application Note for more details.

PV SYSTEM DESIGN USING A SOLAREDGE INVERTER[5][6]	THREE PHASE FOR 208V GRID	THREE PHASE FOR 277/480V GRID	
Minimum String Length (Power Optimizers)	8	14	
Minimum String Length (PV Modules)[7]	16	27	
Maximum String Length (Power Optimizers)	30		
Maximum String Length (PV Modules)[7]	60		
Maximum Power per String	6000[8]	12750[9]	W
Parallel Strings of Different Lengths or Orientations	Yes		

[5] It is not allowed to mix P730 with P320/P340/P370/P400/P405/P505 in one string.
[6] In a case of odd number of PV Modules in one string it is allowed to install one P700/P730 power optimizer connected to one PV Module.
[7] P700 and P730 design with three phase 208V inverters is limited. Use the SolarEdge Designer for verification.
[8] For 208V grid: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (when using three phase inverters with synergy technology – three strings per unit) and when the maximum power difference between the strings is up to 1,000W.
[9] For 277/480V grid: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (when using three phase inverters with synergy technology – three strings per unit) and when the maximum power difference between the strings is up to 2,000W.



Intertek RoHS