NEW

CanadianSolar

HiKu6 Mono PERC

395 W ~ 420 W

CS6R-395|400|405|410|415|420MS

MORE POWER

- Module power up to 420 W
  Module efficiency up to 21.5%
- Lower LCOE & system cost
- Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- Better shading tolerance

MORE RELIABLE

- Minimizes micro-crack impacts
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa*

25 Years **Industry Leading Product Warranty on Materials and Workmanship***

25 Years **Linear Power Performance Warranty***

1st year power degradation no more than 2%
Subsequent annual power degradation no more than 0.55%

*Subject to the terms and conditions contained in the applicable Canadian Solar Limited Warranty Statement. Also this 25-year limited product warranty is available only for products installed and operating on residential rooftops in certain regions.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
UNI 9177 Reaction to Fire: Class 1 / Take-e-way

* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

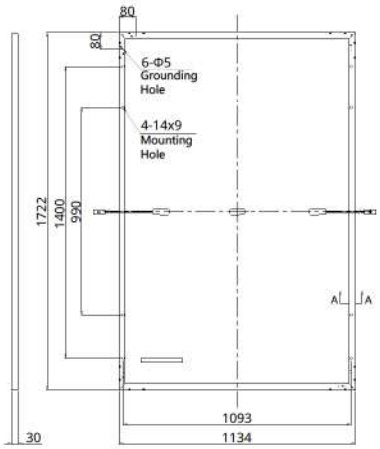
CSI Solar Co., Ltd. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 20 years, it has successfully delivered over 70 GW of premium-quality solar modules across the world.

* For detailed information, please refer to the Installation Manual.

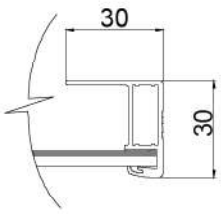
CSI Solar Co., Ltd.
199 Lushan Road, SND, Suzhou, Jiangsu, China, 215129, www.csisolar.com, support@csisolar.com

ENGINEERING DRAWING (mm)

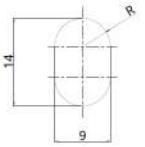
Rear View



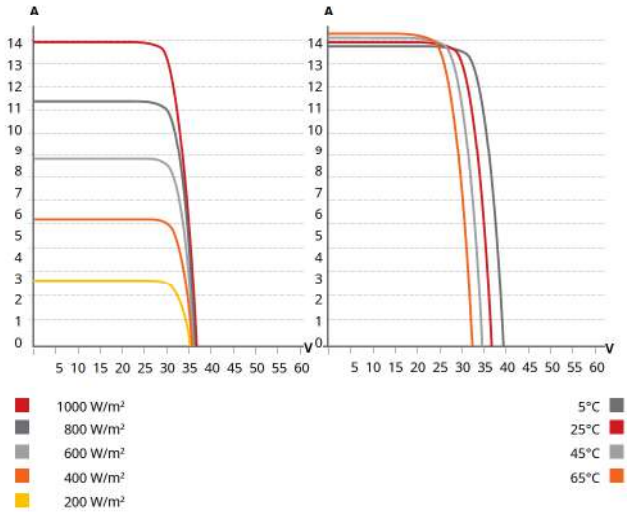
Frame Cross Section A-A



Mounting Hole



CS6R-405MS / I-V CURVES



ELECTRICAL DATA | STC*

CS6R	395MS	400MS	405MS	410MS	415MS	420MS
Nominal Max. Power (Pmax)	395 W	400 W	405 W	410 W	415 W	420 W
Opt. Operating Voltage (Vmp)	30.6 V	30.8 V	31.0 V	31.2 V	31.4 V	31.6 V
Opt. Operating Current (Imp)	12.91 A	12.99 A	13.07 A	13.15 A	13.23 A	13.31 A
Open Circuit Voltage (Voc)	36.6 V	36.8 V	37.0 V	37.2 V	37.4 V	37.6 V
Short Circuit Current (Isc)	13.77 A	13.85 A	13.93 A	14.01 A	14.09 A	14.17 A
Module Efficiency	20.2%	20.5%	20.7%	21.0%	21.3%	21.5%
Operating Temperature	-40°C ~ +85°C					
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)					
Module Fire Performance	TYPE 1 (UL 61730 1500V) or TYPE 2 (UL 61730 1000V) or CLASS C (IEC 61730)					
Max. Series Fuse Rating	25 A					
Application Classification	Class A					
Power Tolerance	0 ~ + 10 W					

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	108 [2 X (9 X 6)]
Dimensions	1722 × 1134 × 30 mm (67.8 × 44.6 × 1.18 in)
Weight	21.3 kg (47.0 lbs)
Front Cover	3.2 mm tempered glass with anti-reflective coating
Frame	Anodized aluminium alloy,
J-Box	IP68, 3 bypass diodes
Cable	4 mm² (IEC), 12 AWG (UL)
Connector	T6 or MC4 or MC4-EVO2
Cable Length (Including Connector)	Portrait: 410 mm (16.1 in) (+) / 290 mm (11.4 in) (-); landscape: 1100 mm (43.3 in)*
Per Pallet	35 pieces
Per Container (40' HQ)	910 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

ELECTRICAL DATA | NMOT*

CS6R	395MS	400MS	405MS	410MS	415MS	420MS
Nominal Max. Power (Pmax)	296 W	300 W	304 W	307 W	311 W	315 W
Opt. Operating Voltage (Vmp)	28.7 V	28.9 V	29.1 V	29.2 V	29.4 V	29.6 V
Opt. Operating Current (Imp)	10.33 A	10.39 A	10.45 A	10.52 A	10.58 A	10.65 A
Open Circuit Voltage (Voc)	34.6 V	34.8 V	35.0 V	35.1 V	35.3 V	35.5 V
Short Circuit Current (Isc)	11.09 A	11.15 A	11.21 A	11.28 A	11.34 A	11.41 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.34 % / °C
Temperature Coefficient (Voc)	-0.26 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	41 ± 3°C

PARTNER SECTION

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice.
Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CSI Solar Co., Ltd.
199 Lushan Road, SND, Suzhou, Jiangsu, China, 215129, www.csisolar.com, support@csisolar.com

LIMITED WARRANTY STATEMENT
PHOTOVOLTAIC MODULE PRODUCTS
KU&HIKU SERIES

For the photovoltaic solar module products of the following module types delivered under the sales contract or purchase order signed on and after Jul 1st, 2022, CSI Solar Co., Ltd. (hereinafter referred to as "CSI Solar") will provide warranty in accordance with this <LIMITED WARRANTY STATEMENT PHOTOVOLTAIC MODULE PRODUCTS KU&HIKU SERIES> (hereinafter referred to as "Limited Warranty Statement").

This Limited Warranty Statement applies only to the following module types ("Products") of CSI Solar: CS3L-XXXMS (black frame or all black module), CS3N-XXXMS (black frame or all black module), CS6R-XXXMS (black frame or all black module), CS6R-XXXMS-HL (black frame or all black module), "XXX" in the aforementioned module type denotes the rated output of the module (Pmax), for example "CS3L-355MS".

This Limited Warranty Statement does not apply to Products sold to and installed in Australia, New Zealand, Japan, and P.R. China.

TWENTY FIVE (25) YEAR LIMITED PRODUCT WARRANTY

For the specified Products listed below and only when they are sold in below specified regions and installed on the residential rooftops, subject to the limitations & exclusions contained herein, CSI Solar warrants to the original buyer (the "Buyer") of the Products listed above that, for twenty five (25) years after the Warranty Start Date, the Products shall be free from defects in materials and workmanship which have an adverse effect on Products functionality under normal application, installation, use, and service conditions as specified in CSI Solar's standard product documentation such as the installation manual and its annexes.

For US/CANADA:
- CS3N-XXXMS (black frame or all black module)
- CS6R-XXXMS-HL (black frame or all black module)

For EUROPE:
- CS3L-XXXMS (black frame or all black module)
- CS6R-XXXMS (black frame or all black module)

Claims under the above warranties will only be accepted if the Buyer can prove that the malfunctioning or non-conformity of the Products results exclusively from defects in materials and/or workmanship under normal application, installation, use and service conditions specified in CSI Solar's standard product documentation. This Limited Product Warranty does not warrant a specific power output of the Products, which shall be exclusively covered under the Limited Performance Warranty elaborated below.

TWENTY-FIVE (25) YEAR LIMITED PERFORMANCE WARRANTY

CSI Solar warrants that for a period of twenty-five years from the Warranty Start Date, the Products listed above will maintain a level of performance as set forth below:

- During the first year, CSI Solar warrants the actual power output of the Products will be no less than 98% of the labeled power output.

- From year 2 to year 25, the actual annual power decline will be no more than 0.55%; by the end of year 25, the actual power output will be no less than 84.8% of the labeled power output.

The actual power output of the Products shall be determined for verification using Standard Testing Conditions only. Testing equipment uncertainty shall be taken into account and applied to all actual power output measurements.

WARRANTY START DATE

The foregoing "LIMITED PRODUCT WARRANTY" and "LIMITED PERFORMANCE WARRANTY" are respectively and jointly referred to as "limited warranty" or "warranty". The Warranty Start Date shall be the day after the completion of the first installation of the Products or 90 days after the delivery (Incoterms of 2020) of the Products to the Buyer, whichever date is earlier.

The warranty period is calculated based on calendar years. For example, the first year of the warranty period is from the Warranty Start Date to the 365th day, and so on.

EXCEPTIONS

The limited warranties set forth herein **DO NOT** apply to any Products: 1) for which CSI Solar has not received all or part of the due payments from the Buyer; 2) unable to provide the purchase proofs, Products information and other information or materials that can prove the claim is valid; 3) which have been subject to negligence in transportation, handling, storage or use; 4) which have been repaired without CSI Solar's authorization or in any way tampered with; 5) which have been subject to extraordinary hot, salt or chemical exposure; 6) which have been subject to improper installation, application, alteration or unauthorized service according to the local laws and regulations or CSI Solar's standard product documentation, or improper system design which caused constant shading to the Products; 7) which have been subject to power failure or surges, flood, fire, direct or indirect lightning strikes, , accidental breakage, vandalism, explosions, acts of war, or other events outside CSI Solar's control; 8) which have been moved from its original installation location; 9) third party components that are connected with the Products or the components of the construction on which the Products are mounted have defects; or 10) installed on mobile units (except photovoltaic tracking system), such as vehicles, ships or offshore-structures.

In addition, the limited warranties do not apply to any deterioration in the appearance of the Products (including, without limitation, any scratches, stains, rust, discoloration, or mold) or any other changes to the Products in appearance stemming from the normal wear and tear over time of product materials. Also, no warranty claim may be made if the product label, type or serial number of the applicable Products has been altered, removed or made illegible.

REMEDIES

In respect of the Twenty five (25) Year Limited Product Warranty, if CSI Solar verifies in its reasonable judgment that the Products fail to conform to the terms of the Limited Product Warranty set forth herein, CSI Solar, at its option, will provide one of the following remedies: 1) repair the Products; 2) replace the Products with new products whose labeled power wattages equal to or exceed the Warranted Wattages of replaced Products (the Warranted Wattages is defined as the labeled power wattages of the Products minus the permissible accumulated degradation); or 3) provide a refund of the fair market value of the Products assessed based on the Warranted Wattages at the time of claim.

In respect of the Twenty-Five (25) Year Limited Performance Warranty, if CSI Solar verifies in its reasonable judgment that the Products fail to conform to the terms of the Limited Performance Warranty set forth herein, CSI Solar, at its option, will provide one of the following remedies: 1) repair the Products; 2) replace the Products with new products whose labeled power wattages equal to or exceed the Warranted Wattages of replaced Products; 3) provide

additional Products to make up the wattage difference between the actual measured power output wattages at the time of claim and the Warranted Wattages; or 4) provide a refund of the fair market value of the wattage difference between the actual measured power output wattages at the time of claim and the Warranted Wattages.

All remedies under this limited warranty statement shall be calculated based upon the Warranted Wattages of the Products at the time of first reporting of the warranty claim.

CSI Solar will not accept any return of Products without CSI Solar's prior authorization. Once accepted, CSI Solar will cover reasonable transportation costs (except for insurance, any taxes, duties, demurrages, or any other costs and expenses related to custom clearance or Buyer's failure to cooperate) for shipping the Products under a claim back from the Buyer to a designated location of CSI Solar, and for shipping the additional, repaired or replacement Products to the original installation location. If CSI Solar opts for repair as the remedy, CSI Solar shall cover reasonable material and labor costs related to the repair. In any event, the costs and expenses for the removal, installation, and/or reinstallation of the Products, including fees, levies, taxes or other financial duties due in relation to any applicable electronic waste disposal regulation, shall remain with the Buyer, unless otherwise agreed to by CSI Solar in a signed writing. CSI Solar will not pay any cost of any fees, levies, taxes or other financial duties imposed on the remedies implemented by CSI Solar or imposed on the Products subject to such remedies, that are due to regulatory, government or judicial decisions not existing at the time of purchase of the affected Products.

Any repair or replacement of the affected Products shall not increase the applicable warranty period. The warranty period for replaced or repaired Products is the remainder of the warranty for the affected Products. CSI Solar reserves the right to deliver a similar product (of similar size, color, shape, and/or power output) in replacement of the affected Products if production of the affected Products is discontinued or such product is otherwise unavailable. Unless instructed by CSI Solar otherwise, Buyer shall dispose of Products in accordance with all local applicable regulations on electronic waste treatment and disposal at its own cost. Products having been replaced shall not be sold, reworked or reused in any way, unless expressly authorized by CSI Solar.

EXCEPT AS OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING REMEDIES STATE CSI SOLAR'S SOLE AND EXCLUSIVE OBLIGATION AND THE BUYER'S SOLE AND EXCLUSIVE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTIES.

CLAIM PROCESS

If the Buyer believes that it has a justified claim covered by the limited warranties set forth above, then the Buyer shall submit such claim in writing without undue delay, with supporting information including but not limited to the claimed quantity, serial numbers, purchasing invoices and proofs, to CSI Solar within the applicable warranty period specified above to the following address, or such future address as CSI Solar may provide from time to time:

Americas
Canadian Solar (USA) Inc.
Customer Service Department
1350 Treat Blvd. Suite 500, Walnut Creek, CA 94598
Tel: +1 855 315 8915
E-mail: service.ca@csisolar.com

Europe, Middle East & Africa
Canadian Solar EMEA GmbH
Customer Service Department
Radlkoferstraße 2, 81373 Munich, Germany
Tel: +49 89 5199689 0
E-mail: service.emea@csisolar.com

Upon receipt of such written claim, CSI Solar may seek further verification of the Buyer's claim of a breach of one of the foregoing limited warranties. If it is necessary to send the Products to a third-party testing institute for verification, the testing institute shall be ISO/IEC 17025:2017 accredited and mutually agreed in advance.

WARRANTY ASSIGNMENT

This Limited Warranty is transferrable to a party taking legal title to the Products, provided that the Products remain installed in their original installation location.

DISPUTE RESOLUTION

In case of any dispute related to warranty claims, such dispute shall be referred to and finally resolved pursuant to the governing law clauses and dispute resolution procedures under the purchase agreement between the Buyer and CSI Solar to which the relevant Products belong.

FORCE MAJEURE

Force majeure refers to unforeseeable, unavoidable and insurmountable objective conditions, including but not limited to war, riot, strike, epidemic situation, quarantine, traffic control and other social events; Natural disasters such as earthquake, fire, flood, snowstorm, hurricane, thunder and lightning, natural disaster, etc.; Or due to the lack of appropriate or sufficient labor force, shortage of raw materials or inability in production capacity, technology or output; Or delay caused by national laws, regulations, administrative rules or orders, and any unforeseen events beyond the control of CSI Solar.

Due to the occurrence or continuation of force majeure, CSI Solar may be unable to perform or may have delays in performing its obligations under this limited warranty statement. In this case, CSI Solar's obligations to perform will be wholly or partly excused according to the relevant applicable laws or contracts with the Buyer. However, CSI Solar shall timely inform the Buyer of the occurrence of force majeure and negotiate with the Buyer to take necessary measures to minimize the impact of force majeure.

NOT INDEPENDENT WARRANTIES

The Buyer has the right to pursue claims under each of the warranties set forth above; provided that if claims arise under multiple limited warranties from a single defect, then if CSI Solar remedies that defect as set forth above, CSI Solar shall be deemed to have resolved all applicable warranty claims arising from that defect.

DISCLAIMERS

THE LIMITED WARRANTIES SET FORTH HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR APPLICATION, AND ALL OTHER OBLIGATIONS ON THE PART OF CSI SOLAR UNLESS SUCH OTHER WARRANTIES AND OBLIGATIONS ARE AGREED TO IN WRITING BY CSI SOLAR. SOME JURISDICTIONS LIMIT OR DO NOT PERMIT DISCLAIMERS OF WARRANTY, SO THIS PROVISION MAY NOT APPLY TO THE BUYER IN SUCH JURISDICTIONS.

LIMITATION OF LIABILITY

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, CSI SOLAR HEREBY DISCLAIMS, AND SHALL HAVE NO RESPONSIBILITY OR LIABILITY WHATSOEVER FOR, DAMAGE OR INJURY TO PERSONS OR PROPERTY OR FOR OTHER LOSS OR INJURY RESULTING FROM ANY CAUSE WHATSOEVER ARISING OUT OF OR RELATED TO ANY OF ITS PRODUCTS OR THEIR USE. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, UNDER NO CIRCUMSTANCES SHALL CSI SOLAR

BE LIABLE TO THE BUYER, OR TO ANY THIRD PARTY CLAIMING THROUGH OR UNDER THE BUYER, FOR ANY LOST PROFITS, LOSS OF USE, OR EQUIPMENT DOWNTIME, OR FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND, HOWSOEVER ARISING, RELATED TO THE PRODUCTS, EVEN IF CSI SOLAR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, CSI SOLAR'S AGGREGATE LIABILITY, IF ANY, IN DAMAGES OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID TO CSI SOLAR BY THE BUYER FOR THE PRODUCT IN THE CASE OF A WARRANTY CLAIM.

THE BUYER ACKNOWLEDGES THAT THE FOREGOING LIMITATIONS OF LIABILITY ARE AN ESSENTIAL ELEMENT OF THE AGREEMENT BETWEEN THE PARTIES AND THAT IN THE ABSENCE OF SUCH LIMITATIONS THE PURCHASE PRICE OF THE PRODUCTS WOULD BE SUBSTANTIALLY DIFFERENT. SOME JURISDICTIONS LIMIT OR DO NOT PERMIT DISCLAIMERS OF LIABILITY, SO THIS PROVISION MAY NOT APPLY TO THE BUYER IN SUCH JURISDICTIONS. SOME JURISDICTIONS DO NOT ALLOW LIMITATIONS ON THE EXCLUSION OF DAMAGES SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO THE BUYER IN SUCH JURISDICTIONS.

YOU MAY HAVE SPECIFIC LEGAL RIGHTS OUTSIDE THIS WARRANTY, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE OR COUNTRY TO COUNTRY. THIS LIMITED WARRANTY DOES NOT AFFECT ANY ADDITIONAL RIGHTS YOU HAVE UNDER LAWS IN YOUR JURISDICTION GOVERNING THE SALE OF CONSUMER GOODS. SOME STATES OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE LIMITATIONS OR EXCLUSIONS IN THIS LIMITED WARRANTY STATEMENT MAY NOT APPLY TO YOU IN THOSE AREAS.

NOTE

In the event of any inconsistency among different language versions of this warranty statement, the English version shall prevail.
The installation and handling of PV Products requires professional skills and should only be performed by qualified professionals. Please read the safety and installation instructions before using the Products.

LIMITED PRODUCT WARRANTY

This SolarEdge Technologies Ltd. Limited Warranty covers defects in workmanship and materials of the below-listed products for the applicable Warranty Period set out below (the "Products"):

Power optimizers: 25 years commencing on the earlier of: (i) 4 months from the date the power optimizers are shipped from SolarEdge; and (ii) the installation of the power optimizers, *provided, however*, that for the module embedded power optimizers (CSI and OPJ models), the Warranty Period shall not exceed the maximum of (1) the module product warranty and (2) the module power warranty periods provided by the applicable module manufacturer.

Inverters, Safety & Monitoring Interface (SMI), Auto-transformer, Backup Interface: 12* years commencing on the earlier of: (i) 4 months from the date the products are shipped from SolarEdge; and (ii) the installation of the products.

StorEdge Interface: 10 years commencing on the earlier of: (i) 4 months from the date the Interfaces are shipped from SolarEdge; and (ii) the installation of the Interfaces.

ZigBee Gateway, Commercial Gateway, Firefighter Gateway, Smart Energy products, Cellular Communication Products, RS485 Plug-in, Energy Meter, Smart EV Charger: 5 years commencing on the earlier of: (i) 4 months from the date the product is shipped from SolarEdge; and (ii) the installation of the product. Warranty duration of wireless communication products is the same whether or not the product is pre-installed in the inverter.

* In some countries the inverter warranty is limited to 7 years. For a list of these countries please access http://www.solaredge.com/articles/warranty_exceptions

The Limited Warranty does not apply to components which are separate from the Products, ancillary equipment and consumables, such as, for example, cables, cable holders, fuses, wires and connectors, whether supplied by SolarEdge or others. Some components may carry their own manufacturer warranty. See product datasheet for more details. In addition, for all power optimizers with a part number ending in C, the SolarEdge warranty does not apply to the input connector.

The Limited Warranty only applies to the buyer who has purchased the Products from an authorized seller of SolarEdge for use within the continent where SolarEdge originally sold the Products and in accordance with their intended purpose. The Limited Warranty may be transferred from buyer to any assignee, and will remain in effect for the time period remaining under the foregoing warranties, *provided* that the Products are not moved outside their original country of installation and any reinstallation is done in accordance with the installation directions and use guidelines accompany the Products (collectively the "*Documentation*").

If, during the applicable Warranty Period, buyer discovers any defect in workmanship and materials and seeks to activate the Limited Warranty, then buyer shall, promptly after such discovery, report the defect to SolarEdge by sending an email to support@solaredge.com with the following information: (i) a short description of the defect, (ii) the Product's serial number, and (iii) a scanned copy of the purchase receipt or warranty certificate of the applicable Product.

Upon buyer's notification, SolarEdge shall determine whether the reported defect is eligible for coverage under the Limited Warranty. The Product's serial number must be legible and properly attached to the Product in order to be eligible for Warranty coverage. If SolarEdge determines that the reported defect is not eligible for coverage under the Limited Warranty, SolarEdge will notify buyer accordingly and will

explain the reason why such coverage is not available. If SolarEdge determines that the reported defect is eligible for coverage under the Limited Warranty, SolarEdge will notify buyer accordingly, and SolarEdge may, in its sole discretion, take any of the following actions:

repair the Product at SolarEdge's facilities or on-site; or

issue a credit note for the defective Product in an amount up to its actual value at the time buyer notifies SolarEdge of the defect, as determined by SolarEdge, for use toward the purchase of a new Product; or

provide Buyer with replacement units for the Product.
SolarEdge will determine whether the Product should be returned to SolarEdge and, if SolarEdge so determined, the Return Merchandise Authorization ("*RMA*") Procedure (set out below) will be invoked. Where replacement Products are sent, SolarEdge generally sends such products within 48 hours. SolarEdge may use new, used or refurbished parts that are at least functionally equivalent to the original part when making warranty repairs. The repaired Product or replacement parts or Product, as applicable, shall continue to be covered under the Limited Warranty for the remainder of the then-current Warranty Period for the Product.

Where the RMA Procedure is invoked by SolarEdge, SolarEdge will instruct buyer how to package and ship the Product or part(s) to the designated location. SolarEdge will bear the cost of such shipment, upon receipt of the Product or part(s), SolarEdge will, at its expense and sole discretion, either repair or replace the Product or part(s).

SolarEdge will deliver the repaired or replaced Product or part(s) to buyer at buyer's designated location in countries where SolarEdge has an office and/or there is a significant PV market. For the specific list of countries to which such service is provided, please access http://www.solaredge.com/articles/shipping_cost_coverage_warranty. SolarEdge will bear the cost of such shipment, including shipping and customs (where applicable) and buyer shall bear any applicable value added tax. SolarEdge may elect to ship replacement Product and/or part(s) prior to receipt of the Product and/or part(s) to be returned to SolarEdge as per the above.

All costs, including, without limitation, labor, travel and boarding costs of SolarEdge service personnel or others that are incurred for labor relating to repairs, uninstalling and reinstalling of Products on-site, as well as costs related to buyer's employees and contractors repair or replacement activities, are not covered by the Limited Warranty and, unless otherwise agreed in writing in advance by SolarEdge, shall be borne by the buyer.

Cellular Communication Products

SolarEdge relies on third party network providers for its Cellular Communication services and is therefore not liable for problems caused by conditions beyond its control. Cellular Communication Products may be temporarily refused, interrupted, curtailed, or otherwise limited because of transmission limitations caused by any factor, including atmospheric, environmental, or topographical conditions; concentrated usage or capacity constraints; network limitations, changes, modifications, updates, maintenance, or other similar activities; a failure by third-party suppliers or service provider; or a public safety emergency. SolarEdge is not liable for any claims or damages related to or arising out of or in connection with (x) any coverage gap, or (y) any wireless network refusal, interruption, curtailment, or other limitation provided above.

SolarEdge reserves the right, without notice or limitation, to limit throughput speeds or quantities or to deny, terminate, end, modify, disconnect, or suspend wireless service if a Cellular Communication Product engages in any illegal or prohibited uses including without limitation those detailed below or if SolarEdge or its network provider, determine that action is necessary to protect the wireless network:

Cellular Communication Products may not be used to disrupt email use by others; to transmit or facilitate any unsolicited or unauthorized advertising, or bulk email; or for activities adversely affecting the ability of other people or systems to use either the Cellular Communication Products or other parties' Internet-based resources. Additionally, use of the Cellular Communication Products for libel, slander, infringement of copyright, or invasion of privacy is strictly prohibited.

Warranty Exclusions: This Limited Warranty will not apply if (a) buyer is in default under the General Terms and Conditions of other Agreement governing the purchase of the Product, or (b) the Product or any part thereof is:

- damaged as a result of misuse, abuse, accident, negligence or failure to maintain the Product;
- damaged as a result of modifications, alterations or attachments thereto which were not pre-authorized in writing by SolarEdge;
- damaged due to the failure to observe the applicable safety regulations governing the proper use of the Product;
- installed or operated not in strict conformance with the Documentation, including without limitation, not ensuring sufficient ventilation for the Product as described in SolarEdge installation guide;
- opened, modified or disassembled in any way without SolarEdge's prior written consent;
- used in combination with equipment, items or materials not permitted by the Documentation or in violation of local codes and standards;
- damaged by software, interfacing, parts, supplies or other product not supplied by SolarEdge;
- damaged as a result of improper site preparation or maintenance or improper installation;
- damaged or rendered non-functional as a result of power surges, lightning, fire, flood, pest damage, accident, action of third parties, direct exposure to sea water or other events beyond SolarEdge's reasonable control or not arising from normal operating conditions;
- damaged during or in connection with shipping or transport to or from buyer where buyer arranges such shipping or transport; or
- The Smart EV Charger Warranty does not include coverage for an EV charger cable that is damaged due to: physical abuse and damage, commercial use, rust, water damage, domestic wear and tear, use of car inlets which are incompatible with the Smart EV Charger connector.

This Limited Warranty does not cover cosmetic or superficial defects, dents, marks or scratches, which do not influence the proper functioning of the Product.

THE LIMITED WARRANTIES SET OUT HEREIN ARE IN LIEU OF ANY OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS PURCHASED BY BUYER FROM SOLAREDGE, WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL (INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), ALL OF WHICH ARE EXPRESSLY EXCLUDED TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW.

Claims by buyer that go beyond the warranty terms set out herein, including claims for compensation or damages, are not covered by the Limited Warranty, insofar as SolarEdge is not subject to statutory liability. In such cases, please contact the company that sold you the Product. Eventual claims in accordance with the law on product liability remain unaffected.

Coverage under the Limited Warranty is subject to buyer complying with the foregoing notification requirements and cooperating with SolarEdge's directions. SolarEdge's sole obligation and buyer's exclusive remedy for any defect warranted hereunder is limited to those actions expressly stated above. Such actions are final and do not grant any further rights, in particular with respect to any claims for compensation.

Unless otherwise specified in an executed Agreement with SolarEdge, the Limited Warranty and related provisions set out herein are subject to SolarEdge's General Terms and Conditions, including, without limitation, the provisions thereof, which relate to disclaimer of warranties, limitation of liability and governing law and jurisdiction.

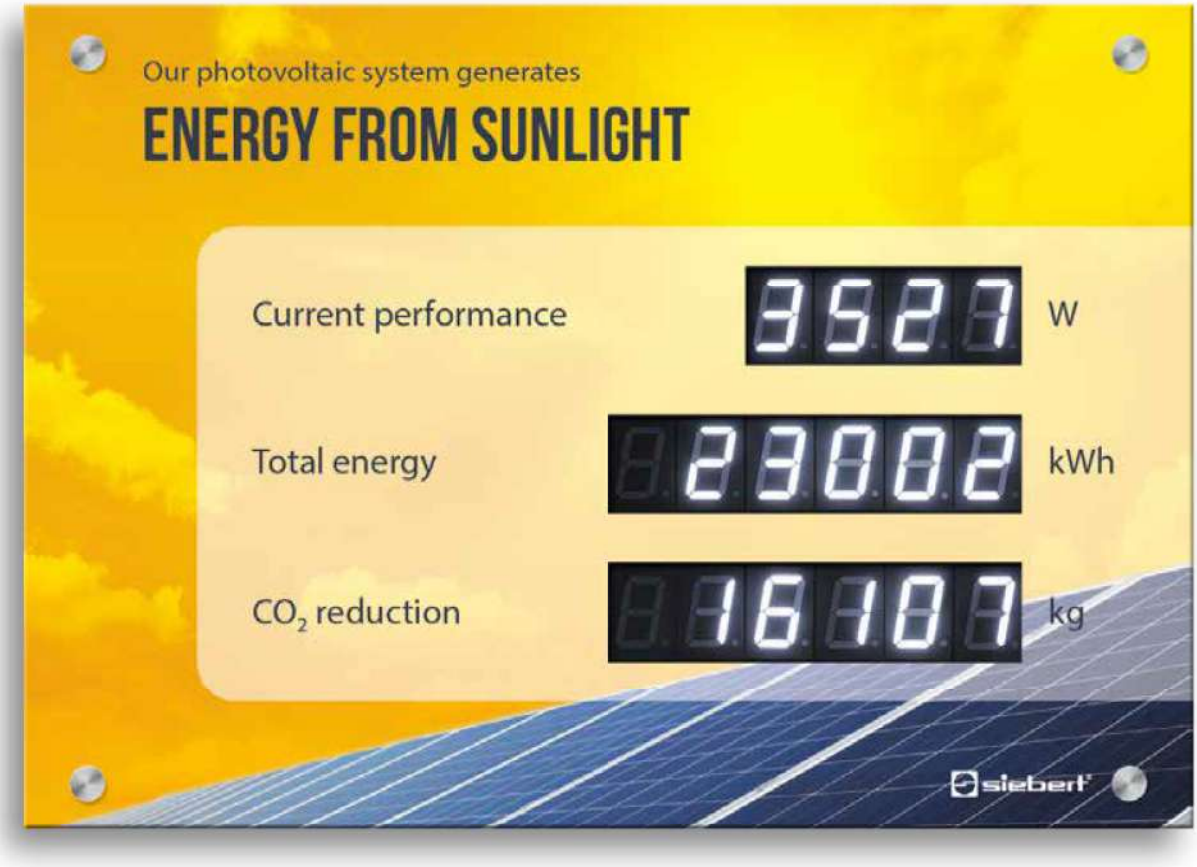
Revised: May 2020

Series

XC410

Elegance in glass and stainless steel

The displays of the XC410 series are representative objects with a clear design language. Glass and stainless steel emphasize the high standard. The frameless and flat design, together with white LEDs , gives off a special elegance.


Our photovoltaic system generates
ENERGY FROM SUNLIGHT
Current performance
3527
W
Total energy
23002
kWh
CO_2 reduction
16107
kg
siebert

Series XC410

Standard designs

ST1

ST2

ST3

Different graphic designs

The illustrated graphic designs of the XC410 series are offered as standard designs.

It's also possible to integrate a logo of the investor, the planner, the sponsors or a photo of the building into the graphics.

Individually designed graphics are also possible. For this, our own design studio is your competent partner.

Labeling variants

You can choose between five labeling variants — page 34.

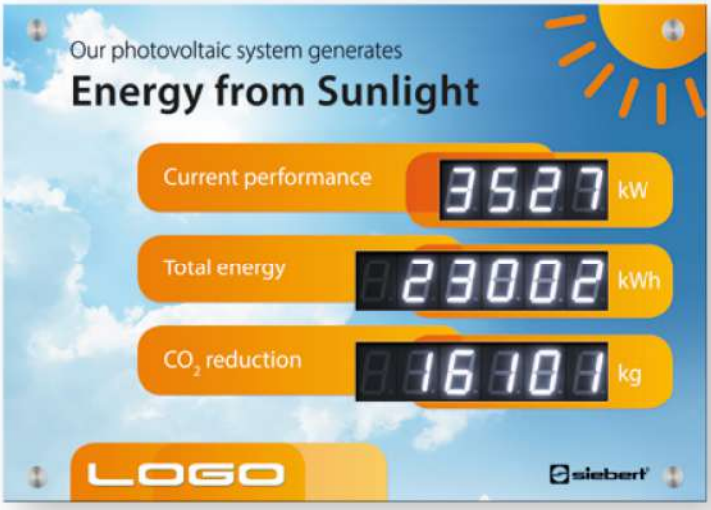
Technical data

Type code	XC410-SAW-N-03
LED display character height	25 mm
LED color	white
Upper LED display	4 digits
Middle LED display	6 digits
Lower LED display	6 digits
Measures W x H x D	420 x 297 x 33 (41) mm
Material	glass/stainless steel, basic body steel sheet varnished
Data interface	Pulse input S0, Serial RS485, USB-C
Power supply	100…240 V AC, 50…60 Hz
Protection type	IP40
Weight	approx. 4 kg

Values in ( ) are valid for devices with Ethernet or WLAN interface

Options

Ethernet interface	XC410-xxx-x-05
WLAN Bridge	XC410-xxx-x-05-18x1
LED color red	XC420-SAR-N-01
1 customer logo on standard design	✔
2 or 3 customer logos on standard design	✔
Individual graphic design	✔



G Pringle

Grid-Connected System: Simulation parameters

Project : **Vine Hill Hotel**

Geographical Site	**Clarkenwell**		Country	**United Kingdom**
Situation	Latitude	51.52° N	Longitude	0.10° E
Time defined as	Legal Time	Time zone UT	Altitude	45 m
	Albedo	0.20		
Meteo data:	**Clarkenwell**	Meteonorm 7.1 (1986-2005), Sat=14% - Synthetic		

Simulation variant : **06**

Simulation date 15/05/23 12h37

Simulation parameters

3 orientations	Tilts/Azimuths	10°/-6°, 10°/-96°, 10°/84°		
Models used	Transposition	Perez	Diffuse	Perez, Meteonorm
Horizon	Free Horizon			
Near Shadings	Detailed electrical calculation	(acc. to module layout)		

PV Arrays Characteristics (4 kinds of array defined)

PV module Si-mono	Model	**CS6R-410MS**		
Custom parameters definition	Manufacturer	Canadian Solar Inc.		
Sub-array "South"	Orientation	#1	Tilt/Azimuth	10°/-6°
Number of PV modules	In series	11 modules	In parallel	1 strings
Total number of PV modules	Nb. modules	11	Unit Nom. Power	410 Wp
Array global power	Nominal (STC)	**4510 Wp**	At operating cond.	4361 Wp (50°C)
Array operating characteristics (50°C)	U mpp	325 V	I mpp	13 A
Sub-array "East"	Orientation	#2	Tilt/Azimuth	10°/-96°
Number of PV modules	In series	11 modules	In parallel	1 strings
Total number of PV modules	Nb. modules	11	Unit Nom. Power	410 Wp
Array global power	Nominal (STC)	**4510 Wp**	At operating cond.	4361 Wp (50°C)
Array operating characteristics (50°C)	U mpp	325 V	I mpp	13 A
Sub-array "EW East"	Orientation	#2	Tilt/Azimuth	10°/-96°
Number of PV modules	In series	14 modules	In parallel	1 strings
Total number of PV modules	Nb. modules	14	Unit Nom. Power	410 Wp
Array global power	Nominal (STC)	**5.74 kWp**	At operating cond.	5.55 kWp (50°C)
Array operating characteristics (50°C)	U mpp	414 V	I mpp	13 A
Sub-array "EW West"	Orientation	#3	Tilt/Azimuth	10°/84°
Number of PV modules	In series	15 modules	In parallel	1 strings
Total number of PV modules	Nb. modules	15	Unit Nom. Power	410 Wp
Array global power	Nominal (STC)	**6.15 kWp**	At operating cond.	5.95 kWp (50°C)
Array operating characteristics (50°C)	U mpp	443 V	I mpp	13 A
Total Arrays global power	Nominal (STC)	**21 kWp**	Total	51 modules
	Module area	**99.6 m²**		

Inverter	Model	**Solis-S5-GR3P10K**		
Custom parameters definition	Manufacturer	Ginlong		
Characteristics	Operating Voltage	160-1100 V	Unit Nom. Power	10.0 kWac
Sub-array "South"	Nb. of inverters	1 * MPPT 50 %	Total Power	5.0 kWac
Sub-array "East"	Nb. of inverters	1 * MPPT 50 %	Total Power	5.0 kWac
Sub-array "EW East"	Nb. of inverters	1 * MPPT 50 %	Total Power	5.0 kWac
Sub-array "EW West"	Nb. of inverters	1 * MPPT 50 %	Total Power	5.0 kWac
Total	Nb. of inverters	2	Total Power	20 kWac

PV Array loss factors

Grid-Connected System: Simulation parameters (continued)

Thermal Loss factor	Uc (const)	29.0 W/m²K	Uv (wind)	0.0 W/m²K / m/s
Wiring Ohmic Loss	Array#1	386 mOhm	Loss Fraction	1.5 % at STC
	Array#2	386 mOhm	Loss Fraction	1.5 % at STC
	Array#3	491 mOhm	Loss Fraction	1.5 % at STC
	Array#4	526 mOhm	Loss Fraction	1.5 % at STC
	Global		Loss Fraction	1.5 % at STC
Module Quality Loss			Loss Fraction	-0.3 %
Module Mismatch Losses			Loss Fraction	1.0 % at MPP
Strings Mismatch loss			Loss Fraction	0.10 %
Incidence effect, ASHRAE parametrization	IAM =	1 - bo (1/cos i - 1)	bo Param.	0.05

User's needs : Unlimited load (grid)

G Pringle

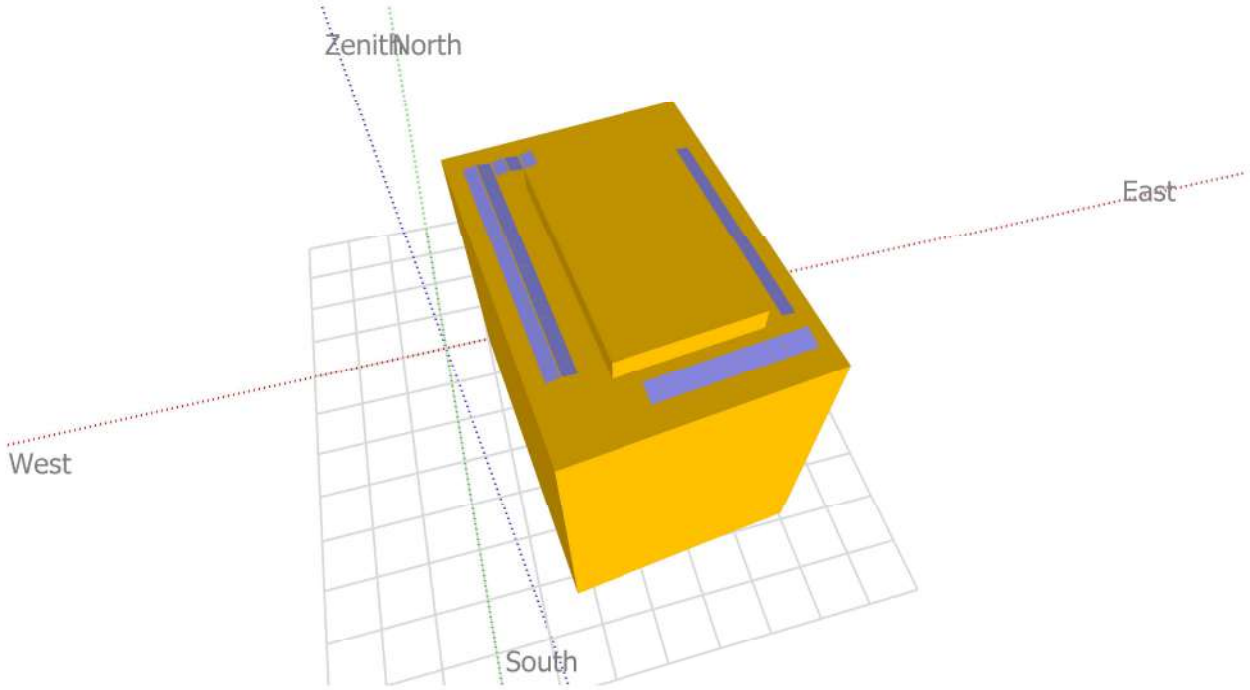
Grid-Connected System: Near shading definition

Project : **Vine Hill Hotel**

Simulation variant : **06**

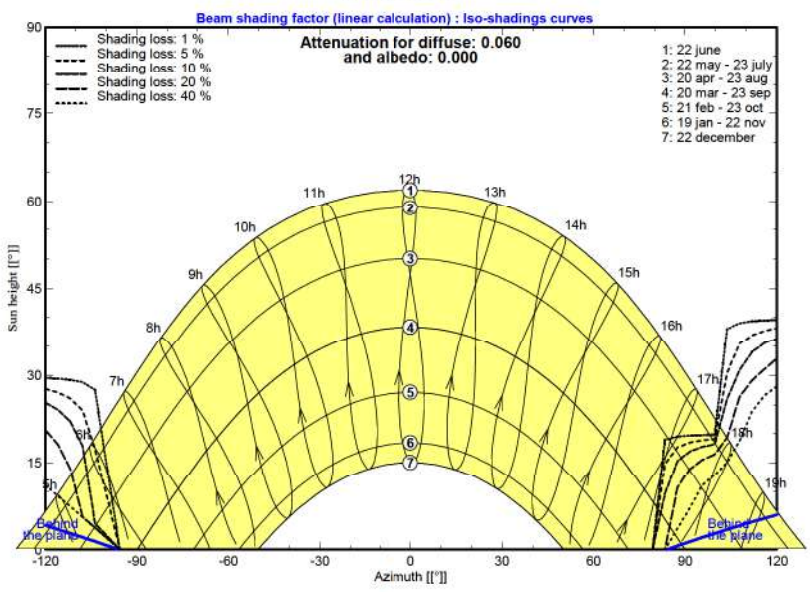
Main system parameters	System type	**Grid-Connected**		
Near Shadings	Detailed electrical calculation	(acc. to module layout)		
PV Field Orientation	3 orientations	Tilt/Azimuth = 10°/-6°, 10°/-96°, 10°/84°		
PV modules	Model	CS6R-410MS	Pnom	410 Wp
PV Array	Nb. of modules	51	Pnom total	**20.91 kWp**
Inverter	Model	Solis-S5-GR3P10K	Pnom	10.00 kW ac
Inverter pack	Nb. of units	2.0	Pnom total	**20.00 kW ac**
User's needs	Unlimited load (grid)			

Perspective of the PV-field and surrounding shading scene



Iso-shadings diagram

Vine Hill Hotel



G Pringle

Grid-Connected System: Main results

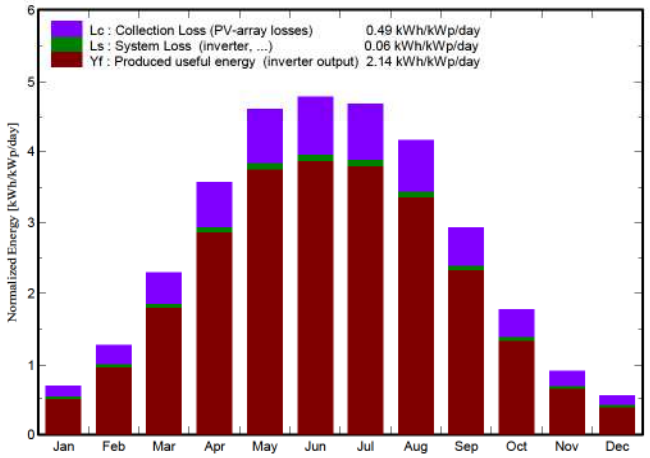
Project : **Vine Hill Hotel**

Simulation variant : **06**

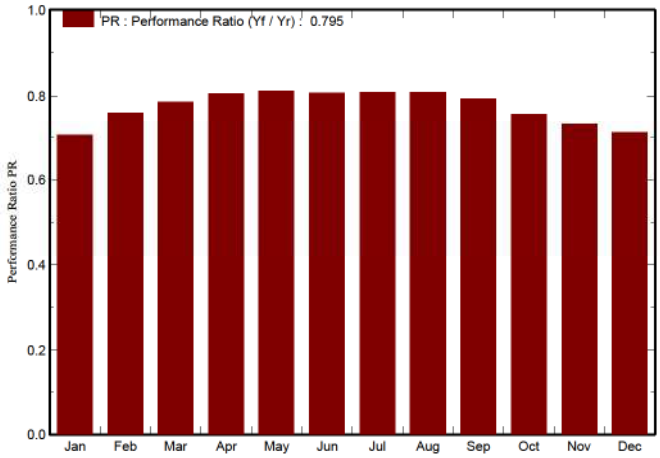
Main system parameters	System type	**Grid-Connected**		
Near Shadings	Detailed electrical calculation	(acc. to module layout)		
PV Field Orientation	3 orientations	Tilt/Azimuth = 10°/-6°, 10°/-96°, 10°/84°		
PV modules	Model	CS6R-410MS	Pnom	410 Wp
PV Array	Nb. of modules	51	Pnom total	**20.91 kWp**
Inverter	Model	Solis-S5-GR3P10K	Pnom	10.00 kW ac
Inverter pack	Nb. of units	2.0	Pnom total	**20.00 kW ac**
User's needs	Unlimited load (grid)			

Main simulation results				
System Production	**Produced Energy**	**16345 kWh/year**	Specific prod.	782 kWh/kWp/year
	Performance Ratio PR	79.49 %		

Normalized productions (per installed kWp): Nominal power 20.91 kWp



Performance Ratio PR



06

Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_Grid kWh	PR
January	20.8	12.88	6.13	21.9	18.6	345	322	0.705
February	34.6	20.94	6.19	35.7	31.1	593	568	0.761
March	69.7	39.16	7.99	70.9	63.0	1203	1165	0.786
April	106.3	71.84	10.58	106.9	95.7	1845	1801	0.806
May	142.5	80.77	14.01	143.0	129.2	2487	2429	0.812
June	143.9	77.57	17.04	143.7	129.6	2485	2424	0.807
July	145.5	85.23	18.72	145.3	131.4	2518	2458	0.809
August	128.6	74.99	18.61	129.0	116.2	2233	2181	0.809
September	86.7	49.65	15.80	87.8	78.2	1496	1457	0.793
October	53.7	33.66	12.60	55.0	48.1	902	871	0.757
November	26.2	15.32	8.79	27.4	23.5	443	419	0.731
December	16.1	11.62	6.17	16.8	14.4	270	249	0.710
Year	974.6	573.63	11.92	983.4	879.1	16819	16345	0.795

Legends:

GlobHor	Horizontal global irradiation	GlobEff	Effective Global, corr. for IAM and shadings
DiffHor	Horizontal diffuse irradiation	EArray	Effective energy at the output of the array
T Amb	Ambient Temperature	E_Grid	Energy injected into grid
GlobInc	Global incident in coll. plane	PR	Performance Ratio

G Pringle

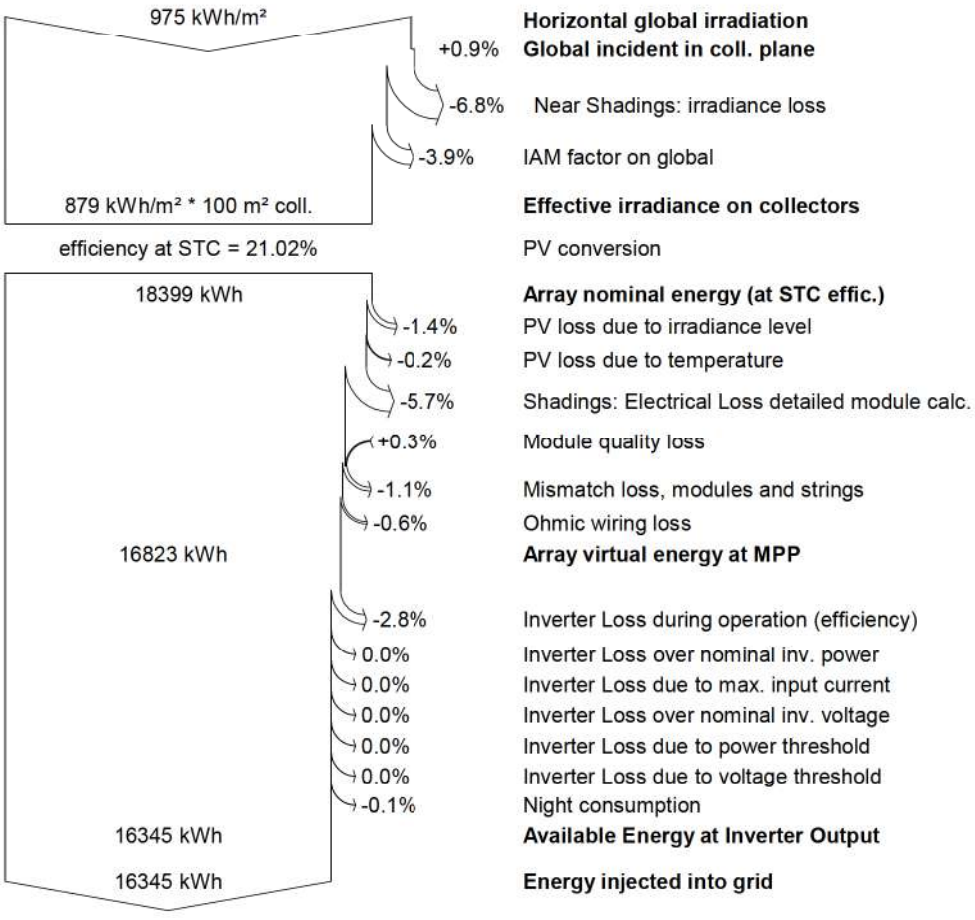
Grid-Connected System: Loss diagram

Project : **Vine Hill Hotel**

Simulation variant : **06**

Main system parameters	System type	**Grid-Connected**		
Near Shadings	Detailed electrical calculation	(acc. to module layout)		
PV Field Orientation	3 orientations	Tilt/Azimuth = 10°/-6°, 10°/-96°, 10°/84°		
PV modules	Model	CS6R-410MS	Pnom	410 Wp
PV Array	Nb. of modules	51	Pnom total	**20.91 kWp**
Inverter	Model	Solis-S5-GR3P10K	Pnom	10.00 kW ac
Inverter pack	Nb. of units	2.0	Pnom total	**20.00 kW ac**
User's needs	Unlimited load (grid)			

Loss diagram over the whole year



NEW: VALKPRO+

VAN DER VALK SOLAR SYSTEMS

ValkPro+
ValkFlat - Portrait
ValkFlat - Landscape

Installing solar panels on buildings of any kind is a logical development, as the roof offers free space and often a surface large enough for a profitable additional function. Van der Valk's solar mounting system for flat roofs was developed while taking roof and wind loads into account and, consequently, complies with the most stringent safety requirements.

Our range for flat roofs is characterised by great efficiency and ease of assembly. The three south-oriented basic systems described below enable optimal utilization and maximum energy yield for each flat roof.

NEW!

ValkPro+

Unique to this system:

- ✓ Mounting is faster than ever
- ✓ Metal connectors, no plastic
- ✓ Maximum logistical simplicity
- ✓ Also applicable to high roofs
- ✓ Low ballast due to coupled rows and wind deflectors

ValkFlat - Portrait

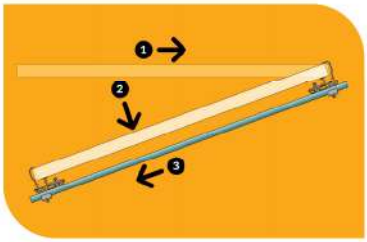
Unique to this system:

- ✓ Clamp system in portrait configuration
- ✓ Any tilt angle possible
- ✓ Universal mid- and end-panel clamps (H 28-50 mm)
- ✓ Quick assembly due to premounted A-frames
- ✓ Low ballast due to coupled design

ValkFlat - Landscape

Unique to this system:

- ✓ Insert system in landscape configuration
- ✓ Extremely fast panel mounting
- ✓ Self aligning panels during installation
- ✓ Support of the panels on the specified long sides
- ✓ Any tilt angle possible
- ✓ Quick assembly due to premounted A-frames
- ✓ Low ballast due to coupled design



Foundations Flat Roof Systems

The **ValkPro+**, the **ValkFlat - Portait** and the **ValkFlat - Landscape** utilize various foundations. For example, the systems can be attached using rubber tile carriers, mass blocks or consoles.

Rubber tile carriers offer ease of transport and installation due to their low weight and raise the system for maximum drainage.

Mass blocks have the advantage that they concurrently provide a significant part of the ballast. In addition, the system is raised higher which offers easy assembly on gravel roofs, for example.

Consoles provide a fixed mounting to the roof in areas with very high wind loads or to roofs that can't tolerate much weight. The special design guarantees watertight sealing.

	ValkPro+	ValkFlat Portrait	ValkFlat Landscape
Rubber tile carriers	✓	✓	✓
Mass blocks	✓	✓	✓
Consoles	✓	✓	✓

This specifies which foundation can be applied.

Glass panels

As well as the standard solar panels with a frame, solar panels without a frame can also be mounted using glass clamps.

Free software

With the 1-2-3 PV Planner, our free software, a complete project calculation, including a list of articles and project-specific installation manual, can be realised in three simple steps.

East west

The systems for flat roofs are also available in east west layout. Please check the separate leaflet for details.

WHY VAN DER VALK SOLAR SYSTEMS?

- Innovative systems developed in compliance with applicable worldwide standards
- Fast and reliable deliveries due to modern machinery and large stocks
- System supplier since 1963
- Free software for project design and calculation
- All systems applicable to any type of roof or surface
- Quick assembly due to premounting of essential components
- All systems available in portrait as well as landscape configuration
- Various systems also available as ready-to-use kits

The mounting systems of Van der Valk Solar Systems are delivered and installed by an extensive network of dealers and installers. We would be happy to help you find your closest point of contact.

Van der Valk Solar Systems develops and produces solar mounting systems for:

VAN DER VALK
SOLAR SYSTEMS

V12-2014

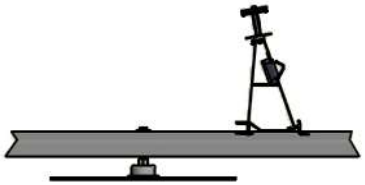
PLEASE CONTACT VAN DER VALK SOLAR SYSTEMS, YOUR DEALER OR INSTALLER FOR FULL INFORMATION.

Valk Solar Systems UK Ltd, Innovation House, Discovery Park, Ramsgate Road, Sandwich CT13 9FF, United Kingdom, telephone +44 (0)1304 897658, website www.valksolarsystems.co.uk, e-mail info@valksolarsystems.co.uk. **DEVELOPER AND PRODUCER OF SOLAR MOUNTING SYSTEMS.**

More than 50 meters

ValkPro+ with: - Side panels (everywhere)
- Consoles (everywhere)

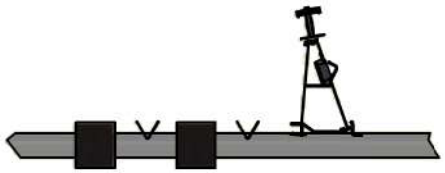
- Max. load per frame is 200kg
- Max. wind pressure is 2000 N/m² (always compare with the panel datasheet)



>25 up to 50 meters

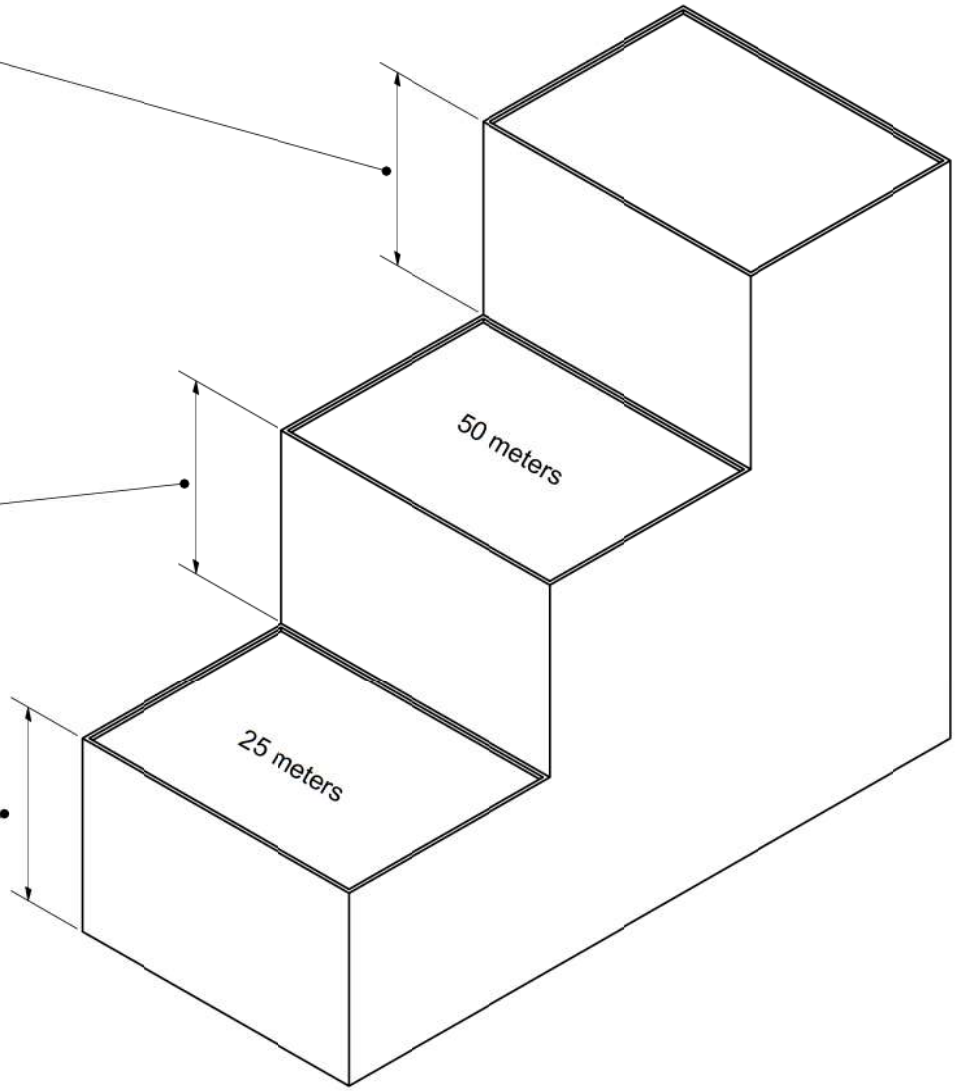
ValkPro+ with: - Side panels (everywhere)
- Mass carriers
- Extra rubber tile carrier (1 per mass carrier set)

- Max. 90kg ballast for South (consoles after 90kg)
- Max. load per frame is 200kg
- Max. wind pressure is 2000 N/m² (always compare with panel datasheet)



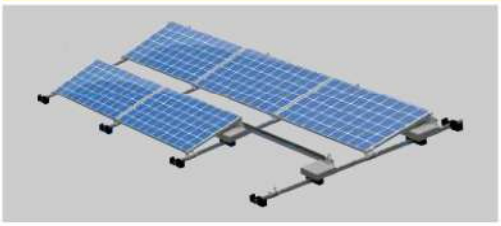
Up to 25 meters:

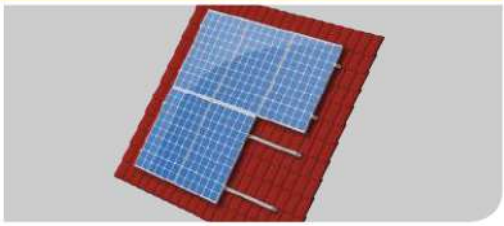
Use ValkPVplanner



American projection:	Scale: 1 : 0.8	Author: Robin	Comments:
VAN DER VALK SOLAR SYSTEMS www.valksolarsystems.nl	Unit: mm	Group:	
	Material: Generic	Date: 8-1-2018	
	Project: Solar regulations		Rev: / State:
	Description: Different building heights	Part number.:	Size: A4

Datasheet
Warranties





VAN DER VALK SOLAR SYSTEMS

Innovation House, Discovery Park
Ramsgate Road, Sandwich CT13 9FF
United Kingdom
T +44 (0)1304 897658
info@valksolarsystems.co.uk
www.valksolarsystems.co.uk

Warranty period per system

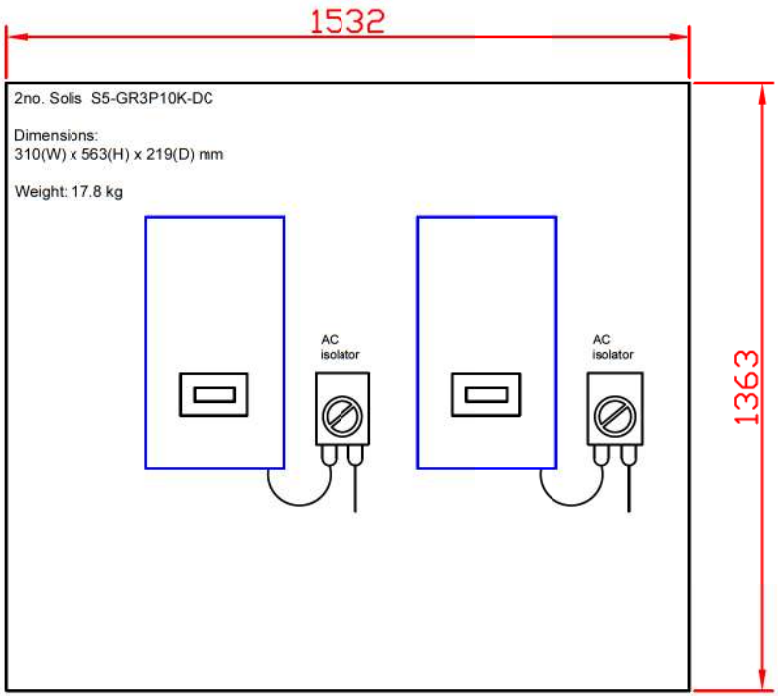
System	Warranty period
Pitched Roof - ValkPitched	10 year *
Flat Roof - ValkFlat	10 year *
Open Field - ValkField	10 year *
Solar tracking system - ValkSolarTracker:	
- Static parts	10 year *
- Dynamic parts	5 year
- Actuator (factory guarantee)	5 year
- Control unit (factory guarantee)	3 year

Extension of warranty period

* Under certain conditions the warranty can be extended to 15, 20 or 25 years.
- Warranty extension from 10 to 15 years: 1% surcharge on net sales.
- Warranty extension from 10 to 20 years: 3% surcharge on net sales.
- Warranty extension from 10 to 25 years: 5% surcharge on net sales.

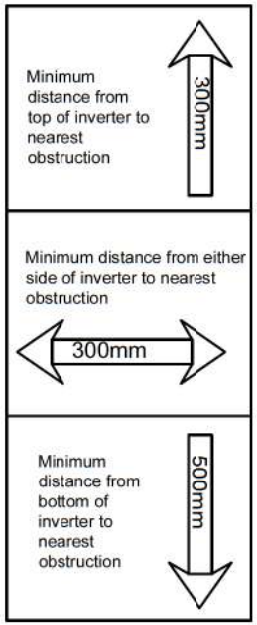
Terms and Conditions

This document provides an overview of the Van der Valk Solar Systems warranty periods and should be used in conjunction with the current Terms and Conditions. You can download these at www.valksolarsystems.co.uk.



Inverters should be sited away from excessively dusty environments. It should be mounted vertically and ambient air temp <40° C.

Heat dissipation is very important and if the inverter(s) are to be enclosed (eg in a cabinet) then forced ventilation will be necessary.



MANUAL START / STOP PROCEDURE

This solar generator can be isolated at any time using any of the switches provided.

For general isolation it is recommended to switch the system off at the main AC isolator. This is a red and yellow rotary switch labelled; **PV SYSTEM - POINT OF EMERGENCY ISOLATION.** This switch can be secured with a padlock in the off position.
The system will automatically restart (after a 3 minute delay) when switched back on.

AUTOMATIC ISOLATION

• OVERVOLTAGE	Stage 1	262.2 V
• OVERVOLTAGE	Stage 2	273.7 V
• UNDERVOLTAGE		184 V
• OVERFREQUENCY		52 Hz
• UNDERFREQUENCY		47Hz
• LOSS OF MAINS		(ROCOF)

IMPORTANT:

1. The emergency isolator at the CCU area must be lockable in the off position only.
2. To avoid nuisance RCD tripping, the PV system should be connected to the un-protected circuits on the CCU. This means that the accable run design should be of a method not requiring RCD protection under BS7671.
3. In order to operate, the kWh generation meter should be wired with the 'mains' side being the PV system, and the 'load' being the CCU side. **This is the reverse of how meters are wired in conventional situations.**

Ref: VINE4484.02 Inverter Board

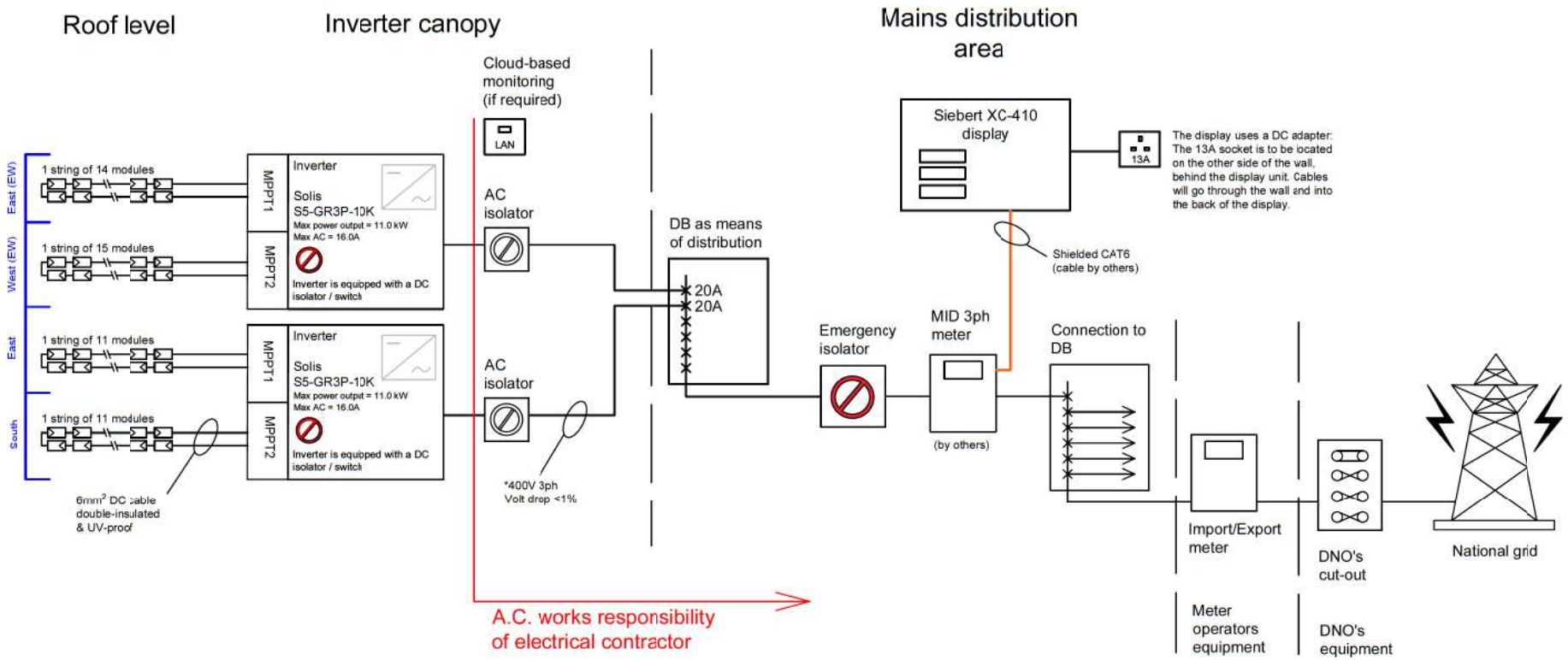
Drawn by GP 15/05/2023

Vine Hill Hotel
Clerkenwell
London
EC1R 5LB

Solstice energy

Little Willow
Upper Anstey Lane
Alton GU34 4BP
020 8789 4717
www.solsticeenergy.co.uk

PV System Electrical Schematic
51 x Canadian Solar 410 Wp monocrystalline modules
20.91 kWp Total



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Ref: VINE4484.03 Schematic

Drawn by GP 15/05/2023

Vine Hill Hotel
Clerkenwell
London
EC1R 5LB

Solstice energy

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Email: info@solsticeenergy.co.uk

Project ref: **VINE4484.07**

Date: 15/05/2023

Re: Vine Hill, Clarkenwell

Quote: 20.91 kWp

Qty			
51	410 Wp Canadian Solar Monocrystalline modules		9950.00
	ValkPro+ L10 (S) ballasted mounting system	(Gravel)	6300.00
2	Solis 3ph Inverter(s)	2 x 10.0kW	1950.00
	Siebert Public Display unit		1000.00
	Balance of system (DC cabling, containment, pulsed meter, etc.)		750.00
	Design, Installation, Commissioning & Admin		3450.00

* Excludes lean-to canopy at roof level for inverter - by others

Sub-total	£23,400.00
VAT 20%	£4,680.00
TOTAL	**£28,080.00**

Expected PV kWh / year (see pg.3)	**16335** kWh/yr
Target requirement	19.8 kWp
Active PV area	99.59 m^2

DISCLAIMER: The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure and is given as guidance only. It should not be considered as a guarantee of performance.

Balance of system costs are dependent on the locations of the Inverters and the length of the DC cable runs – TBC

Solstice will need to obtain DNO (Distribution Network Operator) permission to connect this system to the grid. Any associated costs such as fees or grid reinforcement works will need to be determined, and are not included in our quote at this stage.

Quote is valid for 2 months

Payment terms: Monthly valuations

Written by: GP

Schedule of materials, works and services to be supplied

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	Materials works & services	Supplied by Solstice Energy	Supplied by others	Comments
1	Liaison with DNO (Distribution Network Operator) to agree approval for connection of PV system to mains network.	✓		
2	Project management; liaison with site & other trades	✓		
3	System re-designs as necessary	✓		
4	Annual Service Visit			Priced on individual project bases
5	HSSE co-ordination: preparation of Risk Assessment & Method statement	✓		
6	Local planning or building control permission where required		✓	
7	Dead weights and wind load of PV system	✓		
8	Structural engineers report if required		✓	
9	Final design, specification and installation works to provide a PV system to EREC G98 Issue 1 Amendment 4 (2019), EREC G99 Issue 1 Amendment 6 (2020) and "Guide to the Installation of PV Systems" DTI/pub URN 02/788	✓		
10	Safe access, scaffolding and lifting equipment		✓	
11	Provision of roof mounting points as per our specification	✓		
12	Roof penetrations		✓	
13	Provision of PV array frame earthing as per schematic	✓		
14	DC containment internal		✓	
15	DC containment external	✓		
16	Provision of phone line / network connection / data cable and power supply for PV data logger / display if applicable			n/a
17*	AC cable to our specification installed between inverter location and distribution board (CCU) inc. isolator and generation meter (See comments below)		✓	
18	Supply of Generation meter	✓		
19*	AC testing according to current regulations and Part P if applicable		✓	
20	Storage of tools & equipment (sometimes delivered prior to work)		✓	
21	Waste removal		✓	
22	Testing & commissioning PV system	✓		
23	Provision of welfare facilities (minimum of toilet & hand-washing)		✓	
24	Assistance with application export / generation payment	✓		
25	Documentation including operation and maintenance manuals	✓		
26	Provision of warranties to include 5 year PV Solstice Energy workmanship warranty & all manufacturer warranties	✓		
27	Client handover/training	✓		

* Solstice Energy can take on the complete PV installation, including all AC works and certification. However, where there is other work taking place such as in a new-build or renovation, AC electrical works are often passed over to the main electrical contractor to achieve best results with the rest of the installation. Advantages are:

- Cable runs can be done together
- No unnecessary cable containment is installed
- A single electrical test certificate for the whole ac installation
- Best timing with the other trades

Our price will be determined by the responsibilities shown in the schedule above, but if a customer prefers us to take on all aspects of the PV installation we will happily do so.

Performance estimate

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Methodology taken from "Guide to the Installation of Photovoltaic Systems (2012)" which can be downloaded here:http://www.microgenerationcertification.org/mcs-standards/installer-standards

Refer to VINE4484.06_PVSYST_04May23.pdf

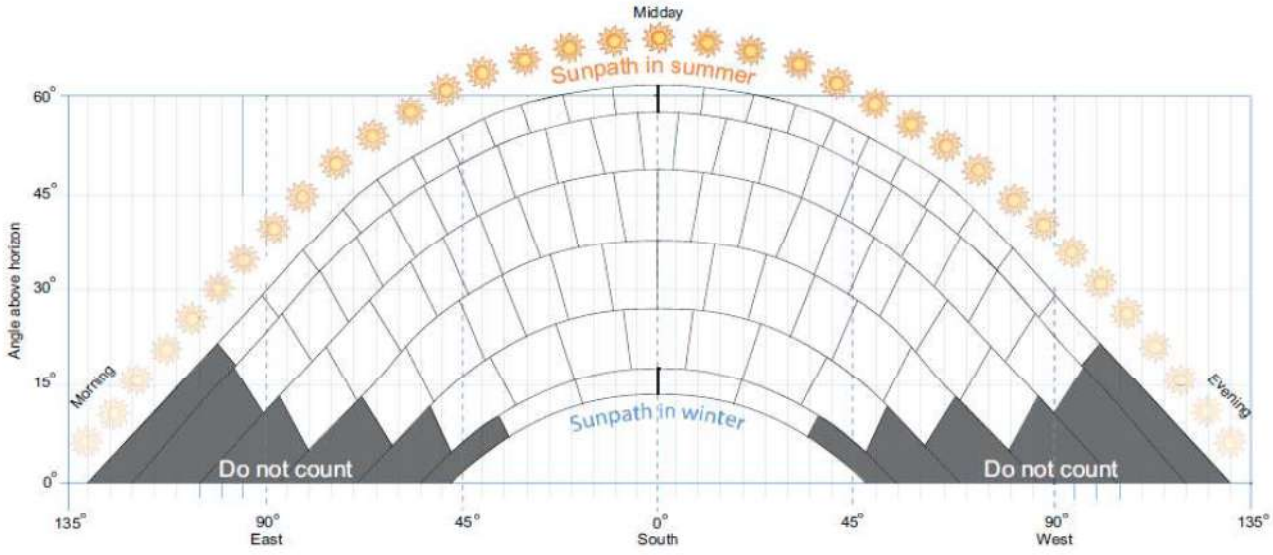
Disclaimer pre-site visit:
This system performance calculation has been undertaken using estimated values for array orientation, inclination or shading. Actual performance may be significantly higher or lower if the characteristics of the installed system vary from the estimated values.

Disclaimer where site visit has taken place and shading factor is <1
This shade assessment has been undertaken using the standard MCS procedure – it is estimated that this method will yield results within 10% of the actual energy yield for most systems.

Horizon view from base and centre of array, looking due South (irrespective of array orientation)

No of shaded segments = ... (x)
Shading factor: 1 - (x * 0.01) =

Any objects on the horizon view that are <10m to any part of the array shall have a shade circle added to the diagram. The shaded cirle(s) should have a radius equal to the height of the object, and should be located so that the apex of the circle sits on the highest point of the shade object. All segments touched by or within the shade circle(s) should be counted as part of the overall shade analysis.



SOLSTICE ENERGY LTD

TERMS AND CONDITIONS OF BUSINESS

1. QUOTATION VALIDITY AND PRICES

1.1 To be valid, quotations must be in writing and accompanied by email or letter from an authorised representative of Solstice Energy Ltd.

1.2 Where a quotation is provided, customers must take particular notice of any specific terms and conditions applied to such quotes, and such terms and conditions shall apply in addition to these terms and conditions. In the event that an of the terms and conditions applied to any such quote conflict with these terms and conditions, those terms and conditions to the quote shall take priority. This quotation is valid for the term stated, after which the quotation shall be deemed to have been withdrawn.

1.3 We reserve the right to revise our price if circumstances arise, such as changes to our scope of work or the build programme, which will increase our costs. We will only incur these costs with your permission but work will not proceed until additional work and costs have been agreed.

2. INSTALLATION

2.1 We will agree an installation date with you upon your satisfaction that funding is in place to cover the quotation.

2.2 We will use our reasonable endeavours to install the system by the dates agreed but we will not be liable for any delay in completion unless terms have been pre-arranged.

2.3 Our installation will be complete when the system specified in the final quotation has been installed, tested and approved by Solstice Energy Ltd.

3. TITLE AND RISK

3.1 Title to goods to a value of the outstanding amount shall remain with Solstice Energy Ltd until payment in full has been received by Solstice Energy Ltd.

3.2 Risk in the goods shall pass to the customer on delivery. Any losses or damage to the goods caused directly by Solstice Energy Ltd during installation shall be borne by Solstice Energy Ltd.

3.3 Any losses or damage to the goods in transit must be reported to Solstice Energy Ltd within 3 days of delivery, failing which the goods shall be deemed to have been accepted by the customer.

4. LIMITATION OF LIABILITY

4.1 The customer is responsible for providing accurate roof measurements, except where Solstice Energy Ltd has visited the site to take measurements. The customer is responsible for assessing the structural strength of their roof and we are relying on advice from you and your advisors.

4.2 Goods and systems should be operated according to the manufacturers instructions and our advice on system operation. Except as provided by statute, Solstice Energy Ltd accepts no liability for loss or injury howsoever caused.

5. CANCELLATIONS

5.1 If, after you place your order, and before work begins, detailed design work is necessary and this results in a significant change to the performance specification of your system, or the cost of installation, then you may cancel the project at this stage.

5.2 If you have to withdraw from the contract for any reason, we reserve the right to charge you for costs that we have incurred up to that time.

6. SYSTEM WARRANTY

6.1 Solstice Energy Ltd will pass on to the customer the benefit of all warranties given by the manufacturers or suppliers of the goods.

6.2 If any defect arises in the system within 5 years(PV) or 2 years (thermal) from the date of commissioning due to workmanship or the system components, Solstice Energy Ltd will, free of charge, (a) review the system performance and diagnose any problems, (b) make any adjustments, replacements or repairs necessary to return the system to its original specification. This warranty will not apply if any defect in the system has been caused by:

- Failure to use the system as advised by us
- Attempted maintenance by anyone other than Solstice Energy Ltd
- Physical damage resulting from any adverse conditions such as fire or physical impact

Solstice Energy Ltd shall not be liable for any loss of profits or other consequential losses arising from any defect in system components. Any liability of Solstice Energy Ltd howsoever arising under this warranty shall not exceed the purchase price of the original photovoltaic system.

7. ACCEPTANCE OF TERMS AND CONDITIONS

7.1 Customers are deemed to have accepted these terms and conditions by placement of an order.

7.2 These conditions shall be governed by English Law and subject to the exclusive jurisdiction of the English courts