PV System Technical Report

Document reference	CHIC5572.xx_TechSub
Project Title	Chichester College
Site Address	Chichester College New Block West Durrington Campus Worthing BN13
Project Reference	CHIC5572
Version	03 – G Pringle
Date of issue	18Dec24

Performance estimate

Project ref: **CHIC5572.02**

Methodology taken from “Guide to the Installation of Photovoltaic Systems (MIS 3002 Issue 4.0)” which can be downloaded here:https://mcscertified.com/standards-tools-library/

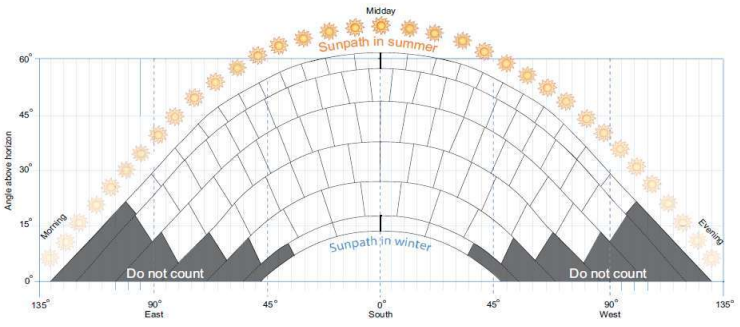
Installation data		
Array	**10deg**	**from south**
PV system capacity (kWp)	22.44	kWp
Orientation of PV array (from south)	10°	
Tilt angle of PV modules	5°	
Postcode region	2	
Calculations:		
kWh / kWp (kk) from table	981	kWh/kWp
Shading factor (SF)	1.00	(assumed)
Estimated Output (kWp x kk x SF)	22014	kWh/yr
TOTAL	**22014**	**kWh/yr**

Estimated PV self-consumption - PV Only (Domestic installations <6000 kWh/yr)	
Assumed occupancy archetype	**n/a**
Assumed annual electricity consumption	n/a kWh
Assumed annual electricity generation from solar PV system	n/a kWh
Expected solar PV self-consumption (PV Only)	n/a kWh
Grid electricity independence / Self-sufficiency (PV Only)	n/a %

Estimated PV self-consumption - With EESS	
Assumed usable capacity of electrical energy storage device, which is used for self-consumption	n/a kWh
Expected solar PV self-consumption (with EESS)	n/a kWh
Grid electricity independence / Self-sufficiency (with EESS)	n/a %

Disclaimer

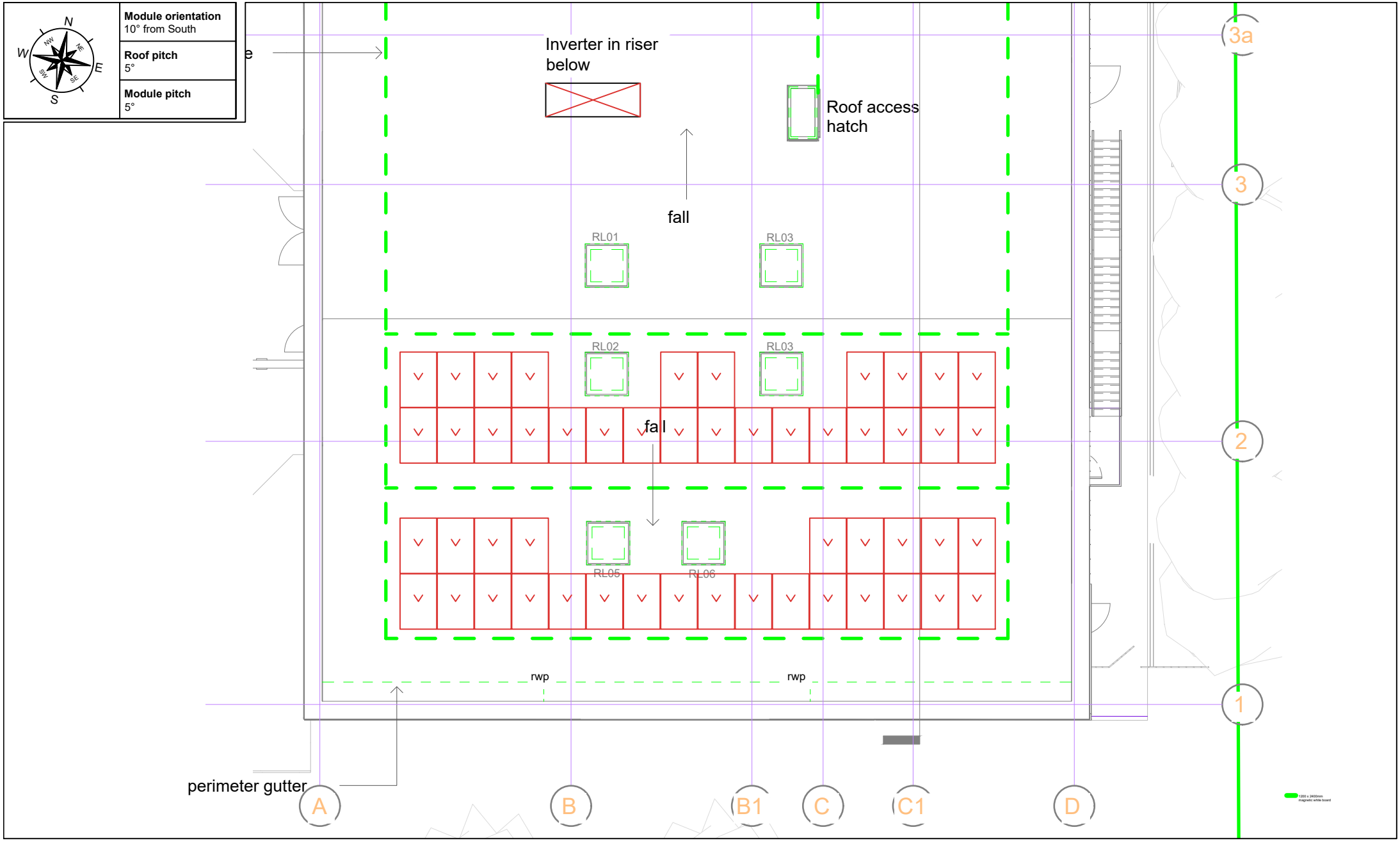
Shading will be present on your system that will reduce its output to the factor stated. This factor was calculated using the MCS shading methodology and we believe that this will yield results within 10% of the actual annual energy estimate for most systems.
This system performance calculation has been undertaken using estimated values for array orientation, inclination or shading. Actual performance may be significantly lower or higher if the characteristics of the installed system vary from the estimated values.
If we have had to estimate or take remotely any of the factors that affect this estimate, we will carry out a full site survey before installation commences. If this survey results in a lower performance estimate than in this quote, then we will issue you with a new quotation and you will have a new Cancellation Period in line with your Cancellation Rights set out in the contract in which to consider it.



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

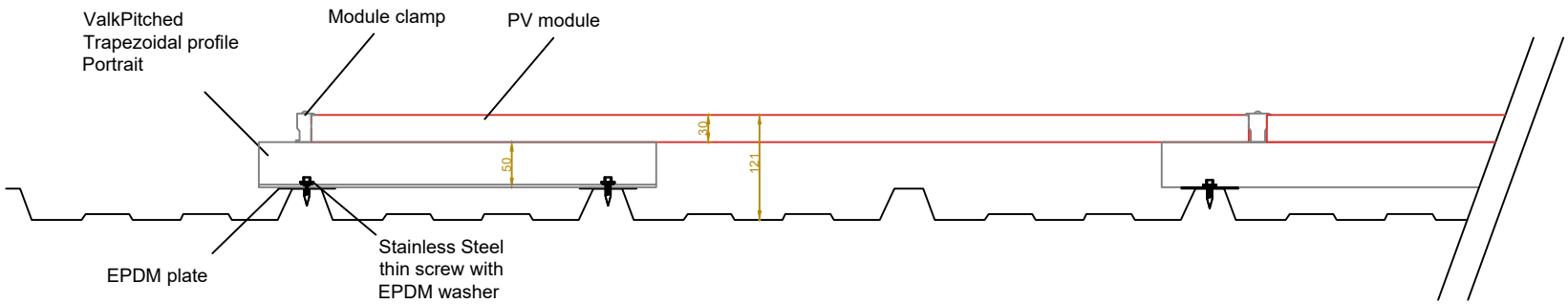
No of shaded segments = ... (x)
Shading factor: 1 - (x * 0.01) =

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.



Notes	**Roof surface** Kingspan Quadcore KS1000RW	**Module qty & type** 51 x Canadian Solar 440Wp	**Module length** 1722mm	**Site address** Chichester College New Block West Durrington Campus Worthing BN13	**Drawing type** Layout	**Project reference** CHIC5572	Solstice energy 020 8789 4717 www.solsticeenergy.co.uk Little Willow, Upper Anstey Lane GU34 4BP
	Mounting system ValkPitched trapezoidal	**PV peak output** 22.44kWp	**Module width** 1134mm		**Revision number** 02	**Drawn by** GP	
	Ridge / roof height 10m	**Inverter qty and type** 1 x Solis 20kW 3ph	**Module depth** 30mm		**Scale** 1:150 @ A4	**Date** 05/12/2024	

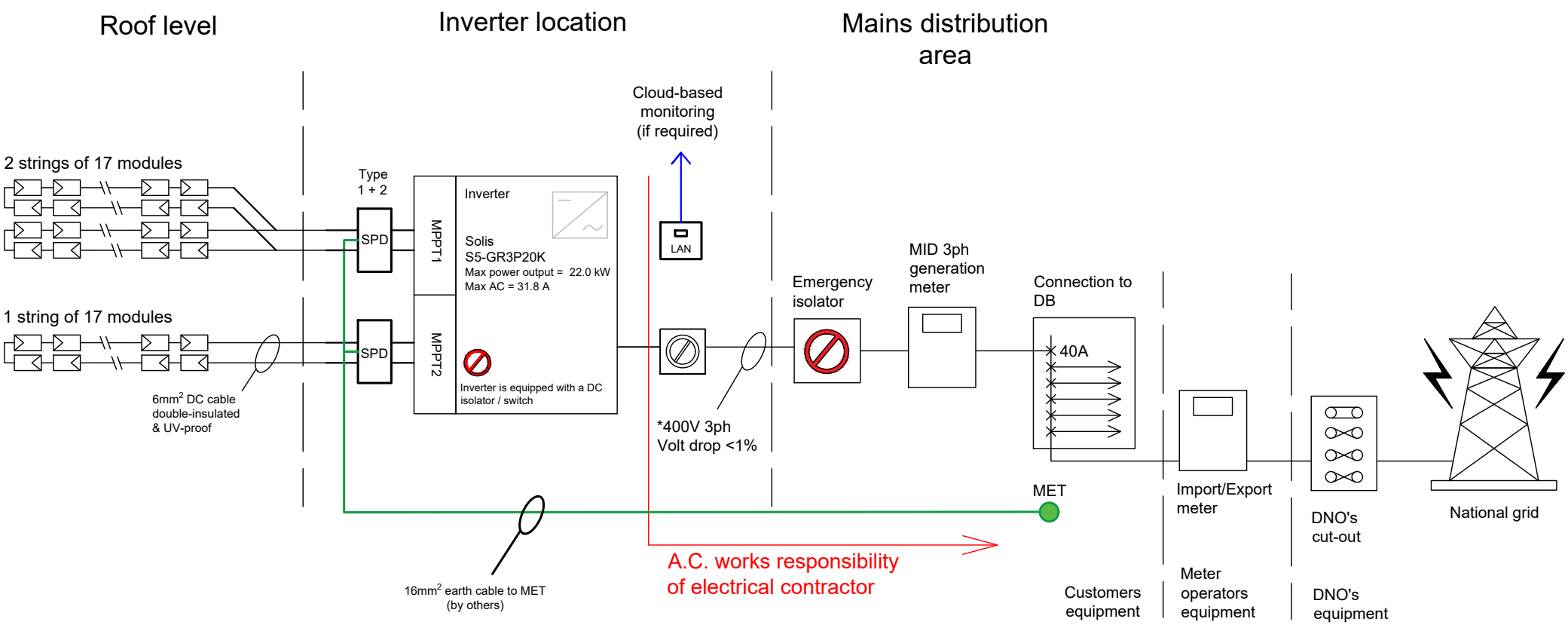
Module orientation	10° from South
Roof pitch	5°
Module pitch	5°



Notes

Roof surface Kingspan Quadcore KS1000RW	**Module qty & type** 51 x Canadian Solar 440Wp	**Module length** 1722mm	**Site address** Chichester College New Block West Durrington Campus Worthing BN13	**Drawing type** Section	**Project reference** CHIC5572	Solstice energy
Mounting system ValkPitched trapezoidal	**PV peak output** 22.44kWp	**Module width** 1134mm		**Revision number** 01	**Drawn by** GP	020 8789 4717 www.solsticeenergy.co.uk Little Willow, Upper Anstey Lane GU34 4BP
Ridge / roof height 10m	**Inverter qty and type** 1 x Solis 20kW 3ph	**Module depth** 30mm		**Scale** 1:8 @ A4	**Date** 18/12/2024	

PV System Electrical Schematic
51 x Canadian Solar 440Wp monocrystalline modules
22.44 kWp Total



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: CHIC5572.01 Schematic

Drawn by GP 27/11/2024

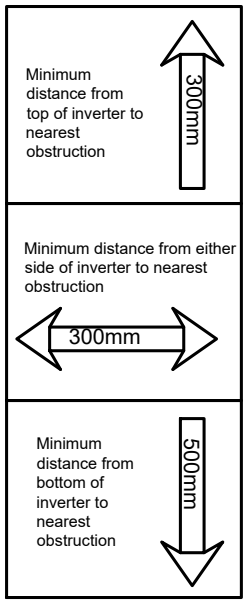
Chichester College
New Block
West Durrington Campus
Worthing
BN13

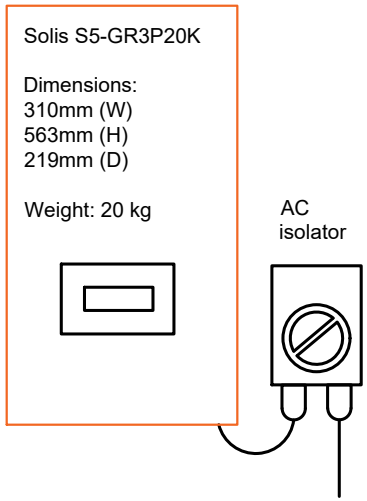
Solstice energy

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





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Ref: CHIC5572.01 Inverter

Drawn by GP 27/11/2024

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Worthing
BN13

Solstice energy

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

ValkPVplanner

Project report

Solstice Energy Ltd
Little Willow, Upper Anstey Lane
Alton
United Kingdom of Great Britain and Northern Ireland
www.solsticeenergy.co.uk

Project name	: CHIC5572.02
Date (modified)	: 05-12-2024
Time (modified)	: 11:27
Company	: Solstice Energy Ltd
User	: Gary Pringle
Version ValkPVplanner	: 2.16.73

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Location information

Project	: CHIC5572.02
Project location	: West Durrington, Worthing BN13, UK
Terrain category	: Country
High neighbouring	: No
Wind area	: 22 m/s
Snow zone	: 0.5 kN/m²
Altitude above sea	: 13 m
Distance to shore line	: 2 km
Peak wind pressure	: 757,08 N/m²
Snow load	: 248,25 N/m²

Project overview

Building	No. of PV-panels	Power [kWp]	System type	Weight of mounting system [kg]
Building 1	**51**	**22,44**		**70**
Building 1 - Area 1 - Subarea 1	25	11,00	ValkPitched - Trapezoidal	30
Building 1 - Area 1 - Subarea 2	26	11,44	ValkPitched - Trapezoidal	40
Total project	**51**	**22,44**		**69**

Notes: The results in this project report can be based on default values. Please check if all values are correct.

Bill of Materials - Total project

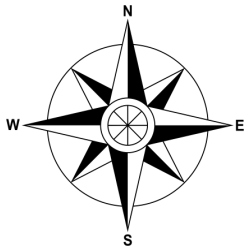
Article no.	Description	Package Qty.	Building 1	Total
721550	Alu mid panel clamp alu profile 28-50mm	150	95	95
721552	End panel clamp alu profile 28-50mm	100	34	34
739059	Plastic end cap ValkPitched Trapezoidal - black	100	129	129
773225	Ss thin sheet screw M6x25mm	100	258	258
7269440	Alu trapezoidal profile L=440mm + EPDM	20	129	129

The bill of materials shown on this page, refer to the materials needed for the total project.

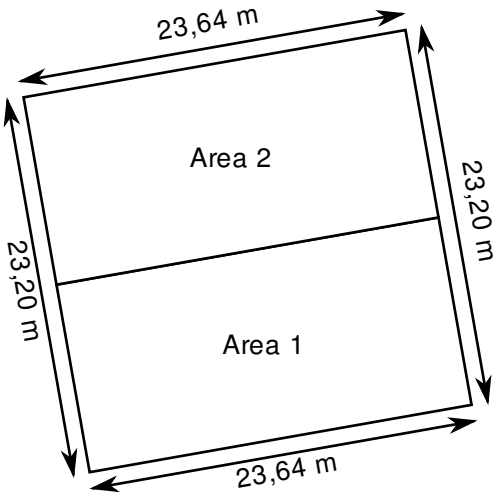
The Bill of Materials per individual roof area can be found in the dedicated chapters of this user manual.

Drawing total project

This drawing shows all the buildings of the total project including the different roof areas.



Building 1



Building information

Building name	: Building 1
Roof inclination	: 5 degrees
Ridge height	: 10 m

Roof information



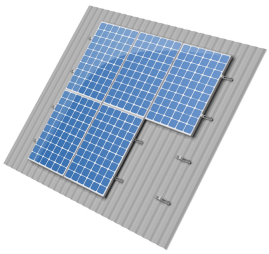
Roof type	: Gabled
Roof material	: Trapezoidal
CTC distance roof crowns	: 333 mm

System information

No. of panels south wall	: 25
Module	: Canadian Solar - CS6R-440MS-T-MC4 1.722 x 1.134 x 0.030
Panel weight	: 21,30 Kg
Module orientation	: Portrait
Edge zone calculated	: 2,00 m
Edge zone adjusted	: 1,00 m
System choice	: Clamp
System colour	: Aluminium
Fasteners	: Screws

System type

ValkPitched - Trapezoidal



Weight information

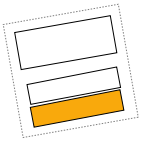
Weight of panels	:	532,50 kg
Weight of mounting system	:	29,91 kg
Total weight	:	562,41 kg

System dimensions

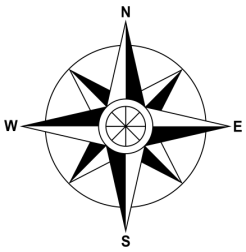
Subarea dimensions	:	76,50 m²
System dimensions	:	49,09 m²

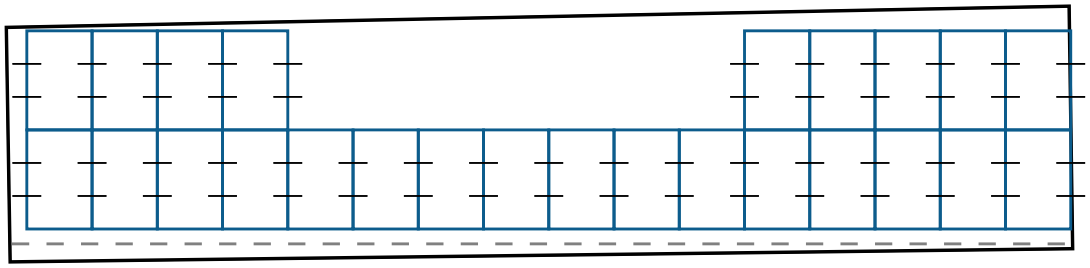
The bill of materials shown in this page apply to materials needed for Building 1 - Area 1 - Subarea 1

Article no.	Description	Package Qty.	Calc. Qty.	Extra Qty.	Total Qty.	Total weight
721550	Alu mid panel clamp alu profile 28-50mm	150	44	0	44	2,24
721552	End panel clamp alu profile 28-50mm	100	12	0	12	0,90
739059	Plastic end cap ValkPitched Trapezoidal - black	100	56	0	56	0,67
773225	Ss thin sheet screw M6x25mm	100	112	0	112	0,78
7269440	Alu trapezoidal profile L=440mm + EPDM	20	56	0	56	25,31
Total weight						**29,91 kg**







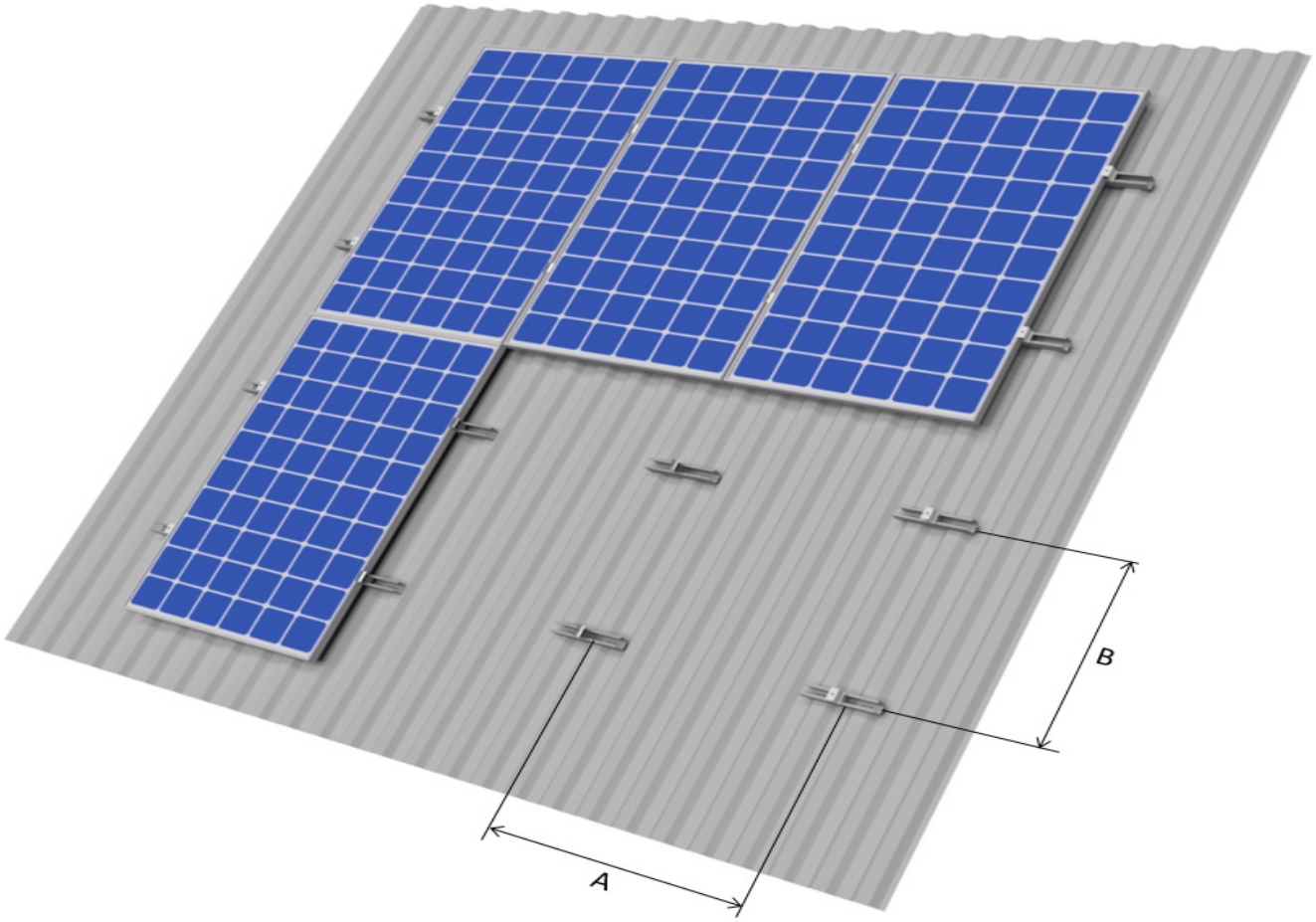


Type	Max. span	Max. overhang
▲	Fastener	

Edge zone calculated: 2,00 m

Edge zone adjusted: 1,00 m

Dilatation line



Dimension type	Value
Dimension A Vertical C.T.C. distance between the profiles	1144 mm
Dimension B Horizontal C.T.C. distance between the profiles	957 mm

This image shows a standard set-up of a portrait - short system, to indicate where the dimensions in the table are referring to.

Building information

Building name	: Building 1
Roof inclination	: 5 degrees
Ridge height	: 10 m

Roof information



Roof type	: Gabled
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CTC distance roof crowns	: 333 mm

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Panel weight	: 21,30 Kg
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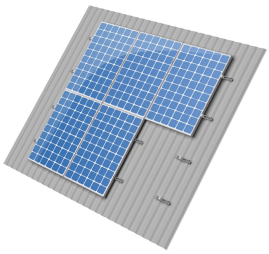
ValkPitched - Trapezoidal



Weight information

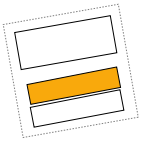
Weight of panels	:	553,80 kg
Weight of mounting system	:	39,15 kg
Total weight	:	592,95 kg

System dimensions

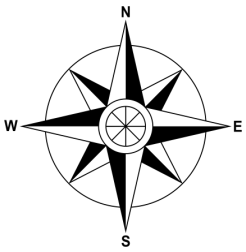
Subarea dimensions	:	76,48 m²
System dimensions	:	51,06 m²

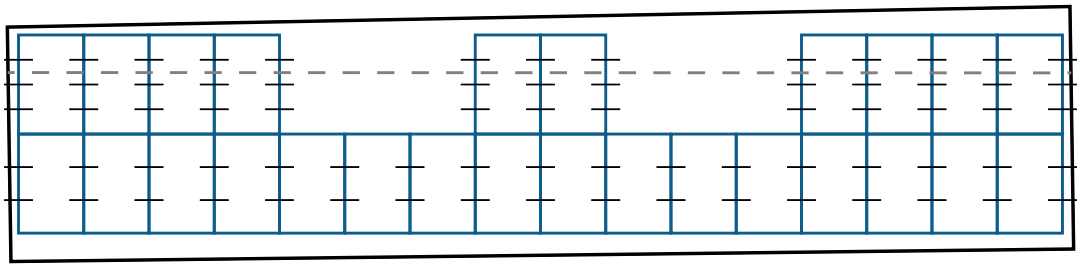
The bill of materials shown in this page apply to materials needed for Building 1 - Area 1 - Subarea 2

Article no.	Description	Package Qty.	Calc. Qty.	Extra Qty.	Total Qty.	Total weight
721550	Alu mid panel clamp alu profile 28-50mm	150	51	0	51	2,60
721552	End panel clamp alu profile 28-50mm	100	22	0	22	1,65
739059	Plastic end cap ValkPitched Trapezoidal - black	100	73	0	73	0,88
773225	Ss thin sheet screw M6x25mm	100	146	0	146	1,02
7269440	Alu trapezoidal profile L=440mm + EPDM	20	73	0	73	33,00
Total weight						**39,15 kg**







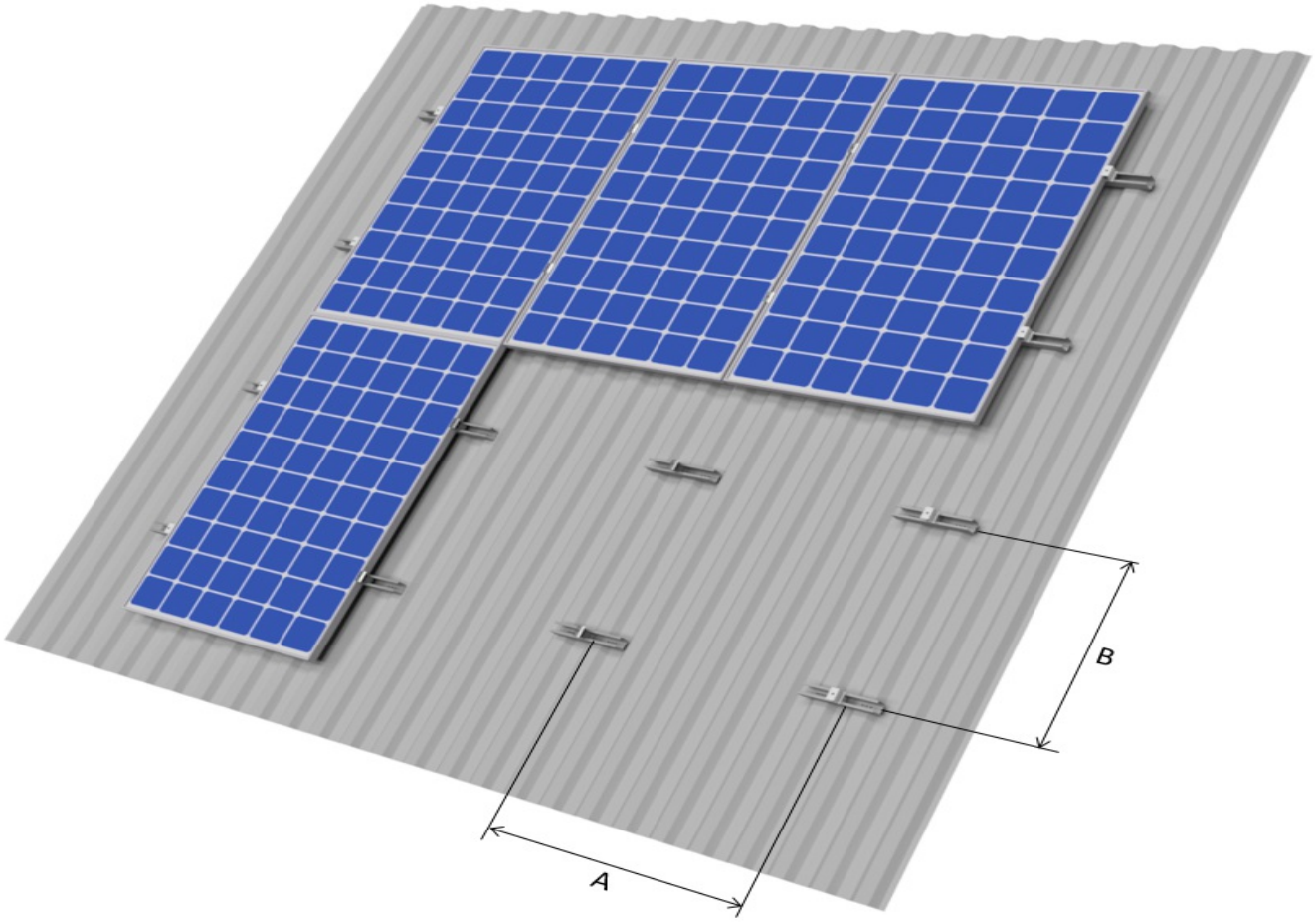


Type	Max. span	Max. overhang
▲	Fastener	

Edge zone calculated: 2,00 m

Edge zone adjusted: 1,00 m

Dilatation line



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This image shows a standard set-up of a portrait - short system, to indicate where the dimensions in the table are referring to.

Regulations

All solar mounting systems of Van der Valk Solar Systems have been designed, calculated and manufactured according to Eurocodes and NEN 7250 regulations and its derivatives (listed below). These regulations have been used for the calculations in the Project Report. Van der Valk Solar Systems meets the applicable CE requirements regarding 2001/95/EG product safety and the applicable sections of BRL9931, components for solar systems. Van der Valk Solar Systems pitched roof clamp systems are MCS012 approved (MCS BBA 0159).

- **EN 1990 Base of Structural design**
  National Annexes:
  - BS EN 1990:2002+A1:2005
  - DIN EN 1990/NA/A1
  - IS-EN 1990:2002+A1:2005
  - NBN EN 1990 ANB
  - NEN-EN 1990+A1+A1/C2/NB
  - NS-EN 1990:2002/NA:2008+A1:2010
  - PN-EN 1990:2004/NA
  - SFS-EN 1990/A1/AC
  - SS-EN 1990/A1:2005/AC:2010
- **EN 1991-1-3 Actions on structures / Snow load**
  National Annexes:
  - BS-EN 1990-1-3:2003
  - DIN EN 1991-1-3/NA
  - IS-EN 1991-1-3:2003
  - NBN EN 1991-1-3 ANB
  - NEN-EN 1991-1-3:2003
  - NS-EN 1991-1-3:2003/NA:2008
  - PN-EN 1991-1-3:2005/NA
  - SFS-EN 1991-1-3/AC
  - SS-EN 1991-1-3/A1:2015
- **EN 1991-1-4 Actions on structures / Wind load**
  National Annexes:
  - BS EN 1991-1-4:2005+A1:2010
  - DIN EN 1991-1-4/NA
  - IS-EN 1991-1-4:2005/NA:2013
  - NBN EN 1991-1-4 ANB
  - NEN-EN 1991-1-4:2005
  - NS-EN 1991-1-4:2005/NA:2009
  - PN-EN 1991-1-4:2008/NA
  - SFS-EN 1991-1-4+AC+A1
  - SS-EN 1991-1-4:2005/AC:2010
- **EN 1993-1-1 Design of steel structures / Rules for buildings**
- **N 1993-1-3 Design of steel structures / Rules for cold formed members**
- **EN 1997 Geotechnical design**
- **EN 1998-1 Design of structures / Seismic actions**
- **EN 1999-1-1 Design of aluminium structures**
- **NEN 7250 Solar systems - Integration in roofs and facades**
- **2001/95/EG Product safety**
- **BRL9931 Components of solar systems**

Wind tunnel testing

Van der Valk Solar Systems have elaborated the results of wind tunnel studies in the product design and calculation tools for both flat and pitched roofs. The application and interpretation of the results have been checked thoroughly and match the assumption and findings as laid down in reports W15328-1ERA-002 (dated December 5th, 2016), W15328-2ERA-007 (dated September 9th, 2018) and W15328-3E-RA-003 (dated June 13th, 2018) for flat roofs and WA 15328-!E-RA-002 (dated December 22nd, 2016) for pitched roofs.

Default values

- This project report is based on the input and results of the online calculation tool ValkPVplanner. The results derived from this tool were calculated with the greatest possible care. Nonetheless, it is possible that some information might not be entirely correct as the results for each project report can be based on default values. Please check carefully if all values are correct.

Safety instructions

- This ValkPVplanner project report is complementary to the Valk Solar Systems installation manuals, which show how to install the Van der Valk solar mounting system.
- The instructions provided in this ValkPVplanner project report must be observed at all times.
- All structural, safety and building regulations currently applicable must be observed.
- Solar mounting systems installed on roofs can be exposed to wind and snow conditions. This will result in additional pressure load of the installed PV system on the roof and building. A design calculation must be used to establish whether or not the roof and building, will be able to withstand the extra pressure load. Where necessary, modifications need to be made.
- To prevent flat roof systems from moving, lift or tip over, the system needs to be either fixed to the roof or weighed-up by ballast. The ballast calculated in this project report is of critical importance to ensure that the mounting system can be placed and used safely on the roof(s) in subject for this project report.
- Flat roof systems placed on a roof with an inclination of 5 degrees or more must be fixed to the roof.
- Restrictions apply for the position of the solar system on a roof. The solar panels must be placed at a the recommended distance from the roof edge, as shown in this project report.

Warranty

- Standard warranty for pitched roof, flat roof and ground mount systems is 10 years. This can be extended under certain conditions.
- The warranty provided is subject to the warranty conditions stated in the general terms and conditions supplied by Van der Solar Systems BV. Our terms and conditions can be found on our website: www.valksolarsystems.nl.

Disclaimer

- Van der Valk Solar Systems B.V. does not accept any liability for any direct and/or indirect consequences of any act (or omission) ensuing from the information or the failure to observe the instructions provided in this project report and the installation manual, nor for possible incorrect use of the ValkPVplanner by the customer.
- The calculations do not take into account obstacles in the near surrounding like high buildings, cliffs and mountains.
- For the full disclaimer of the ValkPVplanner, please visit our website.: www.valksolarsystems.nl.

Contact

- If you have any questions about the ValkPVplanner, calculation results or this project report: please contact the Van der Valk Solar Systems team.

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- The instructions provided in this ValkPVplanner project report must be observed at all times.
- All structural, safety and building regulations currently applicable must be observed.
- Solar mounting systems installed on roofs can be exposed to wind and snow conditions. This will result in additional pressure load of the installed PV system on the roof and building. A design calculation must be used to establish whether or not the roof and building, will be able to withstand the extra pressure load. Where necessary, modifications need to be made.
- To prevent flat roof systems from moving, lift or tip over, the system needs to be either fixed to the roof or weighed-up by ballast. The ballast calculated in this project report is of critical importance to ensure that the mounting system can be placed and used safely on the roof(s) in subject for this project report.
- Flat roof systems placed on a roof with an inclination of 5 degrees or more must be fixed to the roof.
- Restrictions apply for the position of the solar system on a roof. The solar panels must be placed at a the recommended distance from the roof edge, as shown in this project report.

Warranty

- Standard warranty for pitched roof, flat roof and ground mount systems is 10 years. This can be extended under certain conditions.
- The warranty provided is subject to the warranty conditions stated in the general terms and conditions supplied by Van der Solar Systems BV. Our terms and conditions can be found on our website: www.valksolarsystems.nl.

Disclaimer

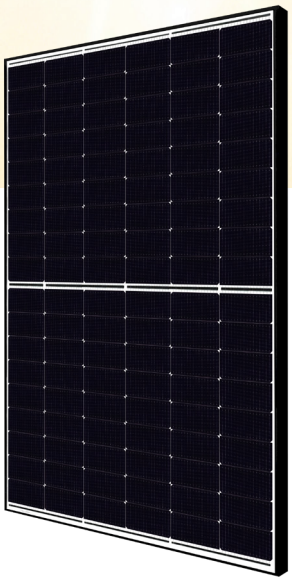
- Van der Valk Solar Systems B.V. does not accept any liability for any direct and/or indirect consequences of any act (or omission) ensuing from the information or the failure to observe the instructions provided in this project report and the installation manual, nor for possible incorrect use of the ValkPVplanner by the customer.
- The calculations do not take into account obstacles in the near surrounding like high buildings, cliffs and mountains.
- For the full disclaimer of the ValkPVplanner, please visit our website.: www.valksolarsystems.nl.

Contact

- If you have any questions about the ValkPVplanner, calculation results or this project report: please contact the Van der Valk Solar Systems team.

NEW

CanadianSolar



TOPHiKu6

N-type TOPCon Technology

420 W ~ 440 W

CS6R-420|425|430|435|440T

MORE POWER

440 W

Module power up to 440 W
Module efficiency up to 22.5 %

Excellent anti-LeTID & anti-PID performance.
Low power degradation, high energy yield

Lower temperature coefficient (Pmax): -0.29%/°C, increases energy yield in hot climate

Lower LCOE & system cost

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***

30 Years **Linear Power Performance Warranty***

1st year power degradation no more than 1%
Subsequent annual power degradation no more than 0.4%

*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 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
IEC 62941: 2019 / Photovoltaic module manufacturing quality system

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
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.

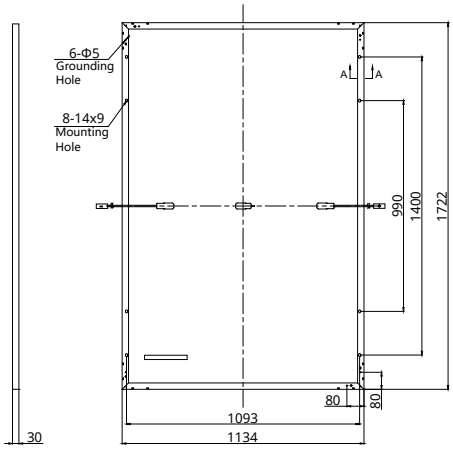
CSI Solar Co., Ltd. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 22 years, it has successfully delivered over 100 GW of premium-quality solar modules across the world.

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

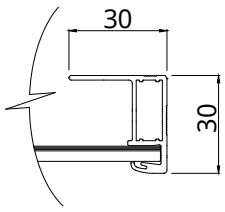
CSI Solar Co., Ltd.
199 Lushan Road, SND, Suzhou, Jiangsu, China, 215129, www.csisolar.com, support@csisolar.com

ENGINEERING DRAWING (mm)

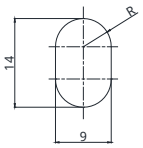
Rear View



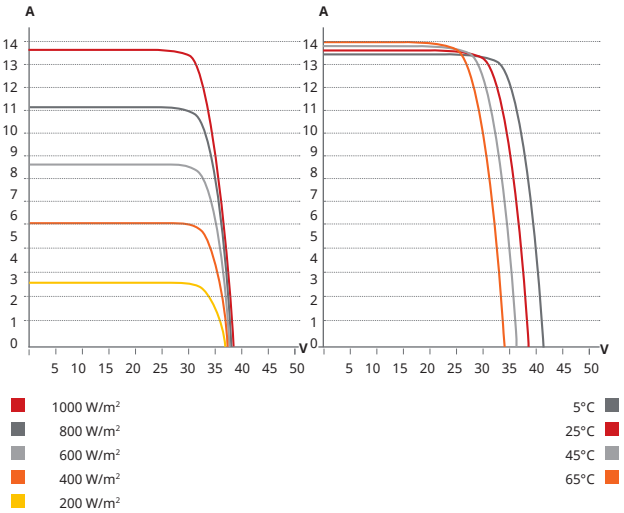
Frame Cross Section A-A



Mounting Hole



CS6R-420T / I-V CURVES



ELECTRICAL DATA | STC*

CS6R	420T	425T	430T	435T	440T
Nominal Max. Power (Pmax)	420 W	425 W	430 W	435 W	440 W
Opt. Operating Voltage (Vmp)	31.6 V	31.8 V	32.0 V	32.2 V	32.4 V
Opt. Operating Current (Imp)	13.30 A	13.37 A	13.44 A	13.51 A	13.59 A
Open Circuit Voltage (Voc)	38.6 V	38.8 V	39.0 V	39.2 V	39.4 V
Short Circuit Current (Isc)	13.71 A	13.78 A	13.86 A	13.94 A	14.01 A
Module Efficiency	21.5%	21.8%	22.0%	22.3%	22.5%
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	TOPCon cells
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 or MC4-EVO2A
Cable Length (Including Connector)	Portrait: 350 mm (13.8 in) (+) / 250 mm (9.8 in) (-); landscape: 1100 mm (43.3 in)*
Per Pallet	35 pieces
Per Container (40' HQ)	910 pieces or 840 pieces (only for US & Canada)

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

ELECTRICAL DATA | NMOT*

CS6R	420T	425T	430T	435T	440T
Nominal Max. Power (Pmax)	318 W	321 W	325 W	329 W	333 W
Opt. Operating Voltage (Vmp)	29.9 V	30.1 V	30.3 V	30.4 V	30.6 V
Opt. Operating Current (Imp)	10.63 A	10.69 A	10.75 A	10.81 A	10.87 A
Open Circuit Voltage (Voc)	36.5 V	36.7 V	36.9 V	37.1 V	37.3 V
Short Circuit Current (Isc)	11.05 A	11.11 A	11.18 A	11.24 A	11.30 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)	-0.29 % / °C
Temperature Coefficient (Voc)	-0.25 % / °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

September 2023. All rights reserved, PV Module Product Datasheet V1.71C25_EN

LIMITED WARRANTY STATEMENT
PHOTOVOLTAIC MODULE PRODUCTS
TOPHIKU SERIES

For the photovoltaic solar module products of the following module types delivered under the sales contract or purchase order signed on and after October. 1st, 2023, CSI Solar Co., Ltd. (hereinafter referred to as "CSI Solar") will provide warranty in accordance with this <LIMITED WARRANTY STATEMENT PHOTOVOLTAIC MODULE PRODUCTS TOPHIKU SERIES> (hereinafter referred to as "Limited Warranty Statement").

This Limited Warranty Statement applies only to the following module types ("Products") of CSI Solar: CS6W-XXXT, CS6R-XXXT, CS6.1-72TD-XXX, CS6R-XXXT (Black Frame & All Black) , CS6.1-54TM-XXXH (All Black) ,CS6.1-60TM-XXXH (All Black) ,"XXX" in the aforementioned module type denotes the rated output of the module (Pmax), for example "CS6W-550T".

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

TWELVE (12) YEAR LIMITED PRODUCT WARRANTY

Subject to the limitations & exclusions contained herein, CSI Solar warrants to the original buyer (the "Buyer") of the Products listed above that, for twelve (12) 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.

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 PRODUCT WARRANTY

For the specified products listed below and only when they are installed on the rooftops in below specified regions, the limited product warranty period is 25 years. All the limitations and exclusions and other considerations included in this Limited Warranty Statement still apply.

For Europe/ Japan:
-CS6R-XXXT (Black Frame & All Black)

For US/Canada
-CS6.1-54TM-XXXH (All Black)
-CS6.1-60TM-XXXH (All Black)

THIRTY (30) YEAR LIMITED PERFORMANCE WARRANTY

CSI Solar warrants that for a period of thirty (30) years from the Warranty Start Date, the Products listed above will maintain a level of performance as set forth below:

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- During the first year, CSI Solar warrants the actual power output of the Products will be no less than 99% of the labeled power output.

- From year 2 to year 30, the actual annual power decline will be no more than 0.4%; by the end of year 30, the actual power output will be no less than 87.4% of the labeled power output.

The actual power output of the Products shall be determined for verification using Standard Testing Conditions only. Testing measurement 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 or external stress 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 (except water surface floating systems).

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 Twelve (12) 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 Thirty (30) 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:

Asia Pacific
CSI Solar Co., Ltd.
Customer Service Department
199 Lushan Road, Suzhou New District Jiangsu
China, 215129
Tel: +86 512 66908088
E-mail: service.cn@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

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

LATAM
Canadian Solar Brazil
Customer Service Department
999 Roque Petroni Junior Avenue, 4th floor ,Vila Gertrudes, São Paulo 04707-910
Tel: +55 11 4637-2276 or 0800 878 3587
E-mail: service.latam@csisolar.com

South Korea
Canadian Solar Korea Ltd.
#906 Dongwoo Building, 328 Teheran ro Gangnam-gu
Seoul, Korea
Tel: +82 2 539 7541
E-mail: service.kr@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, 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

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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.

solis

S5-GR3P(3-20)K

Solis Three Phase Inverters



360 degree

Model:

S5-GR3P3K S5-GR3P4K S5-GR3P5K S5-GR3P6K S5-GR3P8K S5-GR3P9K S5-GR3P10K
S5-GR3P12K S5-GR3P13K S5-GR3P15K S5-GR3P17K S5-GR3P20K

Efficient

- Max. efficiency 98.7%
- String current up to **16A**
- Wide voltage range and low startup voltage

Safe

- IP66
- AFCI protection, proactively reduces fire risk
- Automatic voltage stabilization technology in weak grid conditions

Smart

- Supports export power control
- Supports RS485, WiFi, GPRS
- Scan to register on SolisCloud, supports remote upgrade and control

Economic

- Compact design, simple installation and maintenance
- > 150% DC/AC ratio
- Supports high power modules for lower installation costs

solis

Datasheet

Model Name	S5-GR3P3K	S5-GR3P4K	S5-GR3P5K	S5-GR3P6K	S5-GR3P8K	S5-GR3P9K	S5-GR3P10K	S5-GR3P12K	S5-GR3P13K	S5-GR3P15K	S5-GR3P17K	S5-GR3P20K
Input DC												
Recommended max. PV power	4.5 kW	6 kW	7.5 kW	9 kW	12 kW	13.5 kW	15 kW	18 kW	19.5 kW	22.5 kW	25.5 kW	30 kW
Max. input voltage	1100 V											
Rated voltage	600 V											
Start-up voltage	180 V											
MPPT voltage range	160-1000 V											
Max. input current	16 A / 16 A							32 A / 32 A				
Max. short circuit current	25 A / 25 A							50 A / 50 A				
MPPT number/Max. input strings number	2/2							2/4				
Output AC												
Rated output power	3 kW	4 kW	5 kW	6 kW	8 kW	9 kW	10 kW	12 kW	13 kW	15 kW	17 kW	20 kW
Max. apparent output power	3.3 kVA	4.4 kVA	5.5 kVA	6.6 kVA	8.8 kVA	9.9 kVA	11 kVA	13.2 kVA	14.3 kVA	16.5 kVA	18.7 kVA	22 kVA
Max. output power	3.3 kW	4.4 kW	5.5 kW	6.6 kW	8.8 kW	9.9 kW	11 kW	13.2 kW	14.3 kW	16.5 kW	18.7 kW	22 kW
Rated grid voltage	3/N/PE, 220 V / 380 V, 230 V / 400 V											
Rated grid frequency	50 Hz / 60 Hz											
Rated grid output current	4.6 A / 4.3 A	6.1 A / 5.8 A	7.6 A / 7.2 A	9.1 A / 8.7 A	12.2 A / 11.5 A	13.7 A / 13.0 A	15.2 A / 14.4 A	18.2 A / 17.3 A	19.8 A / 18.8 A	22.8 A / 21.7 A	25.8 A / 24.6 A	30.4 A / 28.9 A
Max. output current	4.7 A	6.4 A	7.9 A	9.5 A	12.7 A	14.3 A	15.9 A	19.1 A	20.7 A	23.8 A	27 A	31.8 A
Power Factor	>0.99 (0.8 leading - 0.8 lagging)											
THDi	<2%											
Efficiency												
Max. efficiency	98.3%				98.5%			98.6%			98.7%	
EU efficiency	97.9%				98.1%			98.2%			98.2%	
Protection												
DC reverse-polarity protection	Yes											
Short circuit protection	Yes											
Output over current protection	Yes											
Surge protection	Yes											
Grid monitoring	Yes											
Anti-islanding protection	Yes											
Temperature protection	Yes											
Integrated AFCI (DC arc-fault circuit protection)	Yes (1)											
Integrated DC switch	Optional											
General Data												
Dimensions (W*H*D)	310*563*219 mm											
Weight	17.3 kg				18 kg			18.9 kg			20.3 kg	
Topology	Transformerless											
Self consumption (night)	<1 W											
Operating ambient temperature range	-25 ~ +60°C											
Relative humidity	0-100%											
Ingress protection	IP66											
Cooling concept	Natural convection							Intelligent redundant fan-cooling				
Max. operation altitude	4000 m											
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15 / VFR:2019, RD 1699 / RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530											
Safety/EMC standard	IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4											
Features												
DC connection	MC4 connector											
AC connection	Quick connection plug											
Display	LCD											
Communication	RS485, Optional: Wi-Fi, GPRS											

Preliminary

(1) Activation required.

Ginlong Technologies Co., Ltd.
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WARRANTY - EUROPE

Solis Inverters and accessories are manufactured by Ginlong Technologies Co., Ltd. (referred to as "Ginlong") which provides the following warranty to the purchaser (referred to as "Customer") of the inverters and accessories (referred to as "Products"). (Customer is deemed to be the owner of the installed Products at first sale.)

1. Warranty Terms

Ginlong warrants all Products to be free from defects in material and function under normal use and service from the date of sale to the Customer. This warranty extends the Customer's statutory rights and cannot be construed so as to diminish such statutory rights.

All grid tied inverters and RHI/RAI hybrid inverters receive: 5 Year warranty

(All 4G, 5G/S5 & S6 Models)

All accessories receive: 2 Year warranty

(DLS-W, S3-WIFI-ST, S2-Logger, S3-LAN-ST, DLS-LAN, DLS-G, DLB-W, DLB-G, RF-Link, PLC-CCO, EPM1-5G, EPM3-5G, EMP3-5G-PLUS, 4G-CT, EXTERNAL METERS.)

For the duration of this period Ginlong guarantees the proper functions of the Products. The warranty shall be executed by the terms included here but not limited to PO/PI/CI of goods.
The warranty period begins when the Product is-
(1) Commissioned at the installation

Or
(2) 6 months after the Product is dispatched from the factory depending on which occurs first.

2. Warranty Extension

The Customer may apply for a warranty extension within 12 months of installation by providing the relevant inverter serial number along with proof of purchase. An extended warranty can be purchased to provide the following:

10 Years total
15 Years total
20 Years total

Warranty extension certificates will be provided to confirm the extension upon purchase.

Until further notice from 1st July 2020, the following countries automatically receive a 10-year warranty extension for grid tied inverters less or equal to 10kW in rating:

Holland, Belgium, France, Germany, Poland, Italy (Subject to change)

3. Warranty Limitations

The Warranty is valid only for Products purchased either directly from Ginlong or from an authorised reseller of Ginlong. The Warranty applies to brand new product only.
The Warranty does not cover:

- Access, labour or transport costs;
- Consequential damages including but not limited to loss of revenue;
- Claims by third parties other than the owner;
- If Products are damaged as a consequence of not installing in accordance with the installation instructions as contained within the Product installation manual. (Except where the installation is performed by Ginlong);
- Items ancillary to installation not supplied by Ginlong;
- Duties, import/export fees or costs and other general administrative costs;
- Damage to Products caused by misuse, improper handling or unauthorised modification;
- Loss or damage occurring whilst in transit;
- Accidental (for any damage or defect caused by lightning, flood, power surge, fire, pest damage, corrosion, actions of third parties or any other act of Force Majeure, event or accident outside Ginlong's reasonable control and not arising under normal and standard operating conditions;) or wilful damage;
- Any Products described in a quotation or delivery note as 'ex-display' or 'reconditioned'. (A separate Warranty extension may have been issued to cover such Products)
- If Products are not initially purchased from Ginlong or the authorised reseller of Ginlong;
- If Products are out of the warranty period;
- If the fault has been caused by another component in the warranty holder's photovoltaic system; or could not be identified upon examination of Products;
- The replaced Products have not been returned to Ginlong or the authorised reseller in time; unless the Products was installed correctly by a local grid company qualified installer and as per the installation instructions supplied with the Products or installed by Ginlong or the authorised reseller;
- Unless the warranty holder has paid in full all amounts owing to Ginlong by the warranty holder;
- If the defect occurs wholly or partially as a result of any act or omission by the warranty holder, or any person other than a person employed or sub-contracted by Ginlong;
- If the Products are not satisfactorily maintained, is subject to misuse, neglect, accident or abuse or the warranty holder continues to use the Products after the defect becomes apparent;
- If the Products are repaired, or any attempt to repair the Products are made, by anyone other than authorised by Ginlong;
- If the Products are moved for any reason after it has been installed (regardless of whether the Products are subsequently reinstalled or moved back to the same location) unless the Products are reinstalled at the same address by a qualified installer and it is stored during any interim period in accordance with the Product manual;
- If the Products are altered or modified in any way (including if the Products' serial or identification number is altered, defaced or removed) unless such modification has been approved in writing by Ginlong;
- For any other fault which does not affect the basic performance of the Products, notwithstanding any external scratch or stain, or natural mechanical wearing which does not represent a defect or normal wear and tear;

4. Data Protection

If the Customers accept the warranty service provided by Ginlong, the Customers allow Ginlong to access, collect and process information related to failure, detection, identifying and debugging when providing services. Such information will only be used to provide warranty services. Since Customers are the controllers of such information, Ginlong cannot confirm whether such information contains confidential information or personal data of the Customers.

Customers should ensure that they will obtain or retain all necessary consent, permission and authorisation ("Consent") in accordance with applicable legal requirements for Ginlong to provide such service, so that Ginlong will not violate applicable legal requirements, Customers privacy policies, or Customer user-agreements in providing related services.

Ginlong will take reasonable measures to ensure the security of such Customer information, but Ginlong is not responsible for any direct or indirect liability caused by the acquisition and processing of such information in the process of providing services.

If the Customer returns the Products to Ginlong, it indicates that the Customer has backed up any confidential, private, personal or other information stored in the Products and has completely deleted such information from the Products, and authorises Ginlong to transfer the Products to the Ginlong service centre in other countries for maintenance. Customers shall be solely responsible for deleting the above information before delivering the hardware to Ginlong. They shall also further indemnify, defend and hold harmless Ginlong from and against any and all claims, liabilities, obligations, costs, expenses, penalties, fines, confiscations and ruling imposed by any government agency or third party as a result of Ginlong failing to comply with applicable laws and regulations in transferring and disposing of the above information.

Ginlong does not guarantee the data stored in the Products; the Customers are responsible for backing up relevant data to prevent loss.

5. Warranty Claims Procedure

To make a warranty claim the following information needs to be provided:

- Completed Warranty Claim Form – Provided by Solis Service Agent
- Products Model (ie. 4G 3.6kW) and Products Serial Number (ie.160D72198270017)
- Copy of the invoice for the inverter
- Copy of the installation report/certificate

If Ginlong receives a legitimate written claim, Ginlong shall, at its discretion:

1) Provide replacement Product; which will be functionally equivalent to the Customer's defective device (in terms of features, function, compatibility).
   or
2) Instruct an accredited service provider to attend the Customer's premises and repair the defect or provide a replacement Product(s);
   or
3) Direct the Customer to return the Products to Ginlong so that Ginlong may repair or provide a replacement Product(s).

Ginlong may, at it its own discretion, use new or factory refurbished Products for replacement.
Ginlong may repair or replace faulty components at its discretion. If the Products or any part thereof is replaced by Ginlong under this limited warranty, all of the rights, title and interests in the replaced Products or parts, shall vest in Ginlong upon it being replaced.

Any Products replaced or repaired under this limited warranty will be covered by the Products' remaining warranty period, or three months, whichever is greater.
The warranty holder must return replaced parts or devices in the original packaging or equivalent.
If the replaced faulty part or device is not received by Ginlong within 30 days, the warranty holder will be charged for the part/device at the current price for a new part/device.
Labour, travel and delivery (to and from Customer) will be charged if Products returned are found to be not faulty following a warranty claim.
A claim for compensation cannot be made for any loss of profit, (including energy that has not been fed into the grid or energy that has not been used for self-consumption, etc.) In any case, whether in contract, tort or otherwise, the maximum compensation for Customer losses caused by its fault shall not exceed the amount paid by the Customer for the purchase of the equipment.

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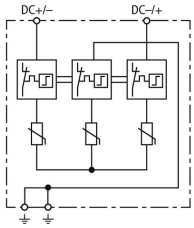
NEW DCB YPV 1200 (900 070)

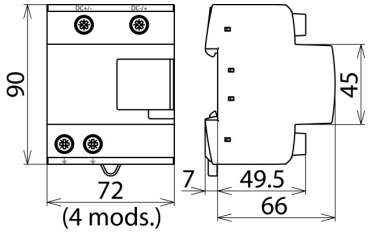
- For use in PV systems according to IEC 60364-7-712
- Universally applicable in earthed and unearthed PV systems
- Prewired type 1 and type 2 combined lightning current and surge arrester for use in photovoltaic generator circuits
- Fault-resistant Y circuit prevents damage to the surge protective device in case of insulation faults in the generator circuit



Figure without obligation



Basic circuit diagram DCB YPV 1200



Dimension drawing DCB YPV 1200

Combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1200 V d.c.

Type Part No.	DCB YPV 1200 900 070
SPD according to EN 50539-11	type 1 + type 2
Max. PV voltage [DC+ -> DC-] (U_{CPV})	≤ 1200 V
Max. PV voltage [DC+/DC- -> PE] (U_{CPV})	≤ 1200 V
Short-circuit current rating (I_{SCPV})	10 kA
Nominal discharge current (8/20 µs) (I_n)	20 kA
Max. discharge current (8/20 µs) (I_{max})	40 kA
Total discharge current (8/20 µs) [DC+/DC- -> PE] (I_{total})	40 kA
Total discharge current (10/350 µs) [DC+/DC- -> PE] (I_{total})	12.5 kA
Lightning impulse current (10/350 µs) [DC+ -> PE/DC- -> PE] (I_{imp})	6.25 kA
Voltage protection level [(DC+/DC-) -> PE] (U_P)	< 3.8 kV
Voltage protection level [DC+ -> DC-] (U_P)	< 3.8 kV
Response time (t_A)	≤ 25 ns
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	1.5 mm^2 solid / flexible
Cross-sectional area (max.)	35 mm^2 stranded / 25 mm^2 flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Dimensions	4 module(s), DIN 43880
Approvals	KEMA, UL
Weight	509 g
Customs tariff number (Comb. Nomenclature EU)	85354000
GTIN	6942299504521
PU	1 pc(s)

We reserve the right to introduce changes in performance, configuration and technology, dimensions, weights and materials in the course of technical progress. The figures are shown without obligation.

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v.3 19-5-16

Customer warranty – Solar installations

Solstice Energy Ltd warrants that the PV system Installation(s) will be free from defects in materials and workmanship for a period of five years. The warranty period will start from the date of commissioning or three months after the delivery of goods on site, whichever event occurs first. Except as provided below, if during the warranty period the system(s) becomes inoperable as a result of defects in materials or workmanship, then Solstice Energy will repair the system(s) free of charge. If repair is not commercially practicable, then Solstice Energy will, at its sole option, either replace the damaged part with another part of like kind and quality or refund the purchase price.

Manufacturers Warranties: Please note that this warranty covers only the installation of your system(s) carried out by Solstice Energy. The warranty on parts will depend on the manufacturer, and Solstice Energy will pass on any warranty received from the manufacturer directly to you. In the event of faulty goods, Solstice Energy Ltd will liaise with the manufacturer and use all reasonable endeavours to secure a replacement of the Product or the part in question) or a refund of the price of the Product (or a proportionate part of the price).

Elements covered;

- System becomes inoperable as a result in defects in materials or workmanship
- Specified level of power as per manufacturers module warranty terms and conditions
- Defective Installation

Third Party Rights: When Solstice Energy Ltd has installed a system in a property that is sold within the Warranty Period the warranty will pass to the new legal owner of the property. It may not be transferred to or exercised by any third party.
Expertise: Any dispute as to whether a defect is covered by this warranty shall be immediately referred at the request of either party to the Renewable Energy Consumer Code's Complaints Service as detailed in 9.2 of the Renewable Energy Consumer Code.

Insurance Backed Warranty for domestic systems
When Solstice Energy Ltd register your contract under the QANW Deposit and Workmanship Warranty Insurance Scheme the insurance provider will send you an insurance policy to cover the workmanship warranty provided by Solstice Energy Ltd. In the event that Solstice Energy Ltd falls into receivership, administration, or bankruptcy during the term of the guarantee the insurance policy will ensure that the guarantee will be honoured for the same period as described in 1.2 above.
In the event that a claim is necessary the policy holder should contact the policy provider directly either by post at Quality Assurance National Warranties, 37 Carrick Street, Ayr, KA7 1NS, or by telephone 01292 268020.For more information about the Insurance Backed Warranty see: https://real.qanw.co.uk/general-faqs.php

Warranty exclusions and limitations

A. Except as otherwise required by applicable law, the original purchaser may not enforce this warranty if he/she has not paid all amounts due to Solstice Energy Ltd.
B. This warranty does not cover preventative maintenance for which the purchaser is responsible.
C. This warranty does not cover damage, malfunctions or failures caused by;
    - Failure to follow Solstice Energy's operation or maintenance instructions.
    - Repair, modifications, or movement of the system or components by someone other than a service technician approved by Solstice Energy Ltd.
    - Abuse, misuse or negligent acts
    - Damage caused by electrical surges, lightning, fire, flood, pest damage, accidental breakage, actions of third parties and other events or accidents outside Solstice Energy's reasonable control and not arising under normal operating conditions.
D. Solstice Energy shall not be liable for any incidental or consequential damage arising from failure of the system to perform as warranted, including but not limited to damages for lost services, profits or savings or expenses arising out of third-party claims. Solstice Energy's maximum liability to the purchaser is limited to the purchase price of the system.

This warranty is governed by English law and the English courts or by the law and the courts governing where your property is if this is outside England or Wales.