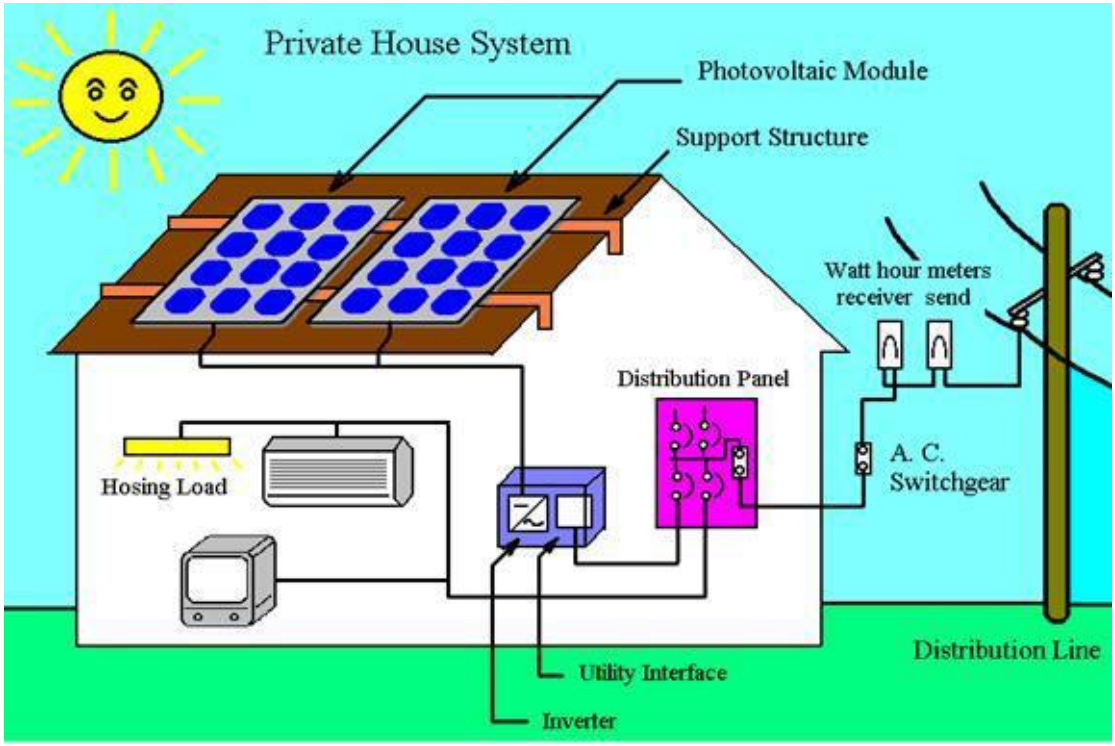
PV Grid-tied 10KW Power System

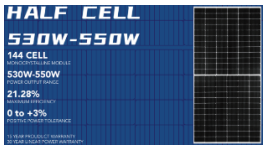
Standardized Configuration Scheme



Drafted by: Bruce Fan
Job Title: Director
Dept.： PV System Support Dept.;
Email： bruce.fan@tide-solar.com;
Date： 2022.09.26
Web： www.tide-solar.com

10KWp 并网光伏发电系统的评估 (使用单晶硅组件)
The Estimation of A 10KW Grid-tied PV Power System w/i Mono-crystalline Solar Module

（1）系统配置一览表（Table of System Standard Components）：

Item	Description	Qty.	Picture of Item	Unit Price	Sub-total Price
PV Module	TD-550MC-144HC, mono-crystalline, 550watt w/i MC4 connectors and leading PV cables;	20Pcs		USD134.00 /Pcs	USD2,680.00
PV Panel Rack	PV panel mounting bracket on sloping roof	1Set		USD330.00 /Set	USD330.00
DC Extension Cable	MC4 solarline 2 (latching) extender cable of 2.5mm^2, 15m length, male /female, 4Pcs. ×15.0m /Pcs.;	4 Pcs		USD14.00 /Pcs	USD56.00
PV-side Disconnector Box	With DC circuit breaker, DC Surge Protection Device and DC Rated Fuses; Waterproof Grade: IP65	1 Pcs		USD120.00/Pcs	USD120.00
Compatible MC4 Connector	Male /Female;	4Pairs		USD2.00 /Pairs	USD8.00
DC Cable from Disconnector Box to Inverter	BVR1*4mm^2, 10m length; plus one pair of MC4 Connector;	4pcs		USD8.00/Pcs	USD32.00
PV Grid-tied Inverter	XG-10KTR 3-Phase, On-Grid	1 Pcs.		USD725.00/Pcs	USD725.00
AC Grid-tied Box	3-phase grid connection	1 Pcs.		USD130.00/Pcs	USD130.00
	Grand-total Price (FOB Qingdao)				**USD4,081.00**

Remarks:

① The PV panel of this system, if being fixed on your rooftop, could occupied an area of about 52m^2.

② To pursue a high-efficiency of this power generation system, when in installation, please pay attention to keeping the consistency of all PV module' level &orientation, so that to avoid a mismatch of the PV modules.

③ With high-quality and efficiency of our components, you could only positively expected an average annual output of solar electricity to be at a quite high level; If you use unqualified components, it may let you down.

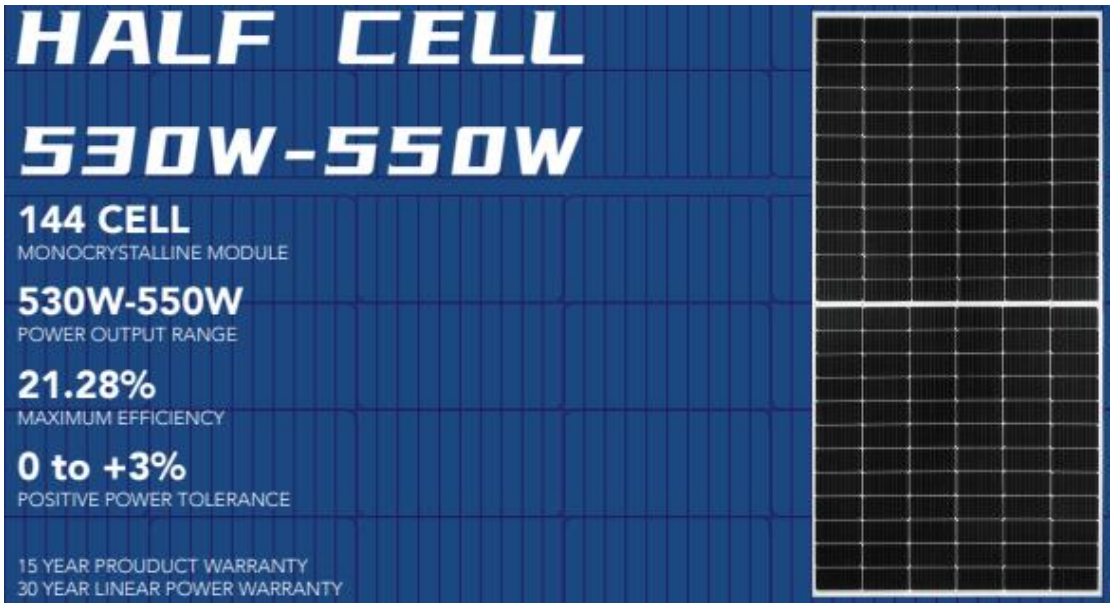
④ For the confirmation of ordering correct PV mounting rack and its accessories, you need to have a further discussion with our salesman to clear necessary information.

以上各设计系统中拟使用的系统主要部件的参数一览表

List of Parameters for Main Components in the Above System Designed

---

拟用太阳能电池组件的参数（Parameters of Proposed PV Module of 550Wp）：

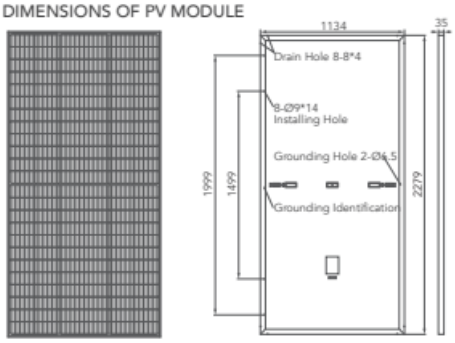


Electrical Characteristics

Component Model	TD-530MC-144HC	TD-535MC-144HC	TD-540MC-144HC	TD-545MC-144HC	TD-550MC-144HC
Maximum Power (PMP)	STC	STC	STC	STC	STC
	530	535	540	545	550
Open Circuit Voltage (VOC)	49.3	49.4	49.5	49.6	49.7
Short Circuit Current (ISC)	13.6	13.70	13.81	13.92	14.02
Maximum Power Voltage (VMP)	41.03	41.29	41.55	41.81	42.07
Maximum Power Current (IMP)	12.92	12.96	13.00	13.04	13.08
Component Efficency (η)	20.56	20.76	20.95	21.14	21.28
Power Tolerance	(0, +3%)				
Maximum System Voltage	1500V DC				
Maximum Rated Fuse Current	25 A				

STC: Irradiance 1000 W/m² module temperature 25 °C AM=1.5

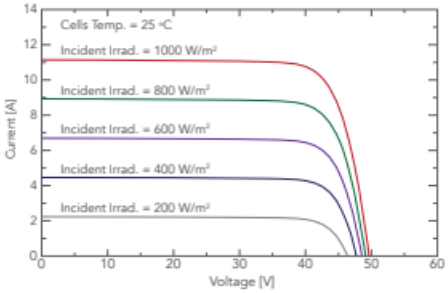
DIMENSIONS OF PV MODULE

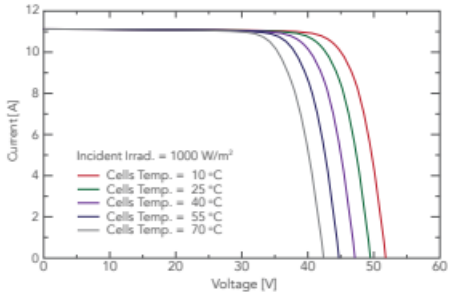


Temperature Characteristics

Maximum Power Temperature Coefficient	-0.35 % / °C
Temperature Coefficient Of Open Circuit Voltage	-0.27 % / °C
Temperature Confficient Of Short Circuit Current	+0.05 % / °C
Working Temperature	-40 ~ +85 °C
Nominal Operating Cell Temperature (NOCT)	45 ± 2 °C

I-V Curve





Structural Characteristics

Module Size	2279x1134x35mm
Weight	26.5kg
Battery	single crystal PERC182x91mm (144pieces)
Glass	3.2mm tempered coated glass, low iron
Frame	anodized aluminum alloy
Junction Box	IP68, 3 diodes
Output Lead	4.0mm 2250mm(+) / 350mm(-) or customized
Mechanical Load	front 5400pa / back 2400pa

Packing Method

Module Size	2279x1134x35mm
Container	40' HQ
Quantity Per Pallet	31
Number Of Pallets Per Container	20
Quantity Per Container	620

拟用并网逆变器的参数（Parameters of Proposed PV On-gird Inverter）：

Key Feature:

XG 3-15kW three phase on-grid solar inverter is specially developed for residential users by INVT Solar to provide full energy for home.

Efficient Higher revenue

- 2MPP Trackers, high single circuit tracking accuracy, fast dynamic response.
- 160% DC Input Oversizing
- Wide MPPT voltage range: 180V-1000V
- Compatible with high power modules

Intelligent Simple O&M

- Smart I-V Curve Diagnosis Function: locate PV string faults accurately and automatically detect faults
- Intelligent Fault Detection: ac-side voltage and current waveforms real-time recorded, fast fault location
- Support RS485/USB (WiFi/GPRS/Ethernet optional): remote monitoring and operation via PC or mobile phones

Reliable Worry free

- IP66 Protection degree: support outdoor installation
- DC & AC Type II SPD: prevent lightning damage
- AFCI Function (Optional): when an arc-fault is detected the inverter immediately stops operation

Item	XG10KTR
Input (DC)	
Max. Input Power	16kW
Max. Input Voltage	1100V
Start Voltage	160V
Rated Input Voltage	600V
Full-load MPP Voltage Range	450V ~ 850V
MPPT Voltage Range	180V ~ 1000V

Number of MPP Trackers	2
Number of String per MPPT	1 / 1
Max. Current per MPPT	14A / 14A
Max. Short Circuit Current per MPPT	18A / 18A
Output (AC)	
Max. Output Current	15.9A
Rated Output Power	10kW
Max. Output Power	11kVA
Rated Grid Frequency	50Hz / 60Hz
Rated Grid Voltage	230Vac / 400Vac, 3L / N / PE
Power Factor	>0.99 (0.8 leading~0.8 lagging)
THDi	<3% (Rated Power)
Efficiency	
Max. Efficiency	98.70%
European Efficiency	98.50%
MPPT Efficiency	99.90%
Protection	
DC reverse polarity protection	Yes
Anti-islanding protection	Yes
AC short circuit protection	Yes
Residual current monitoring unit	Yes
Insulation resistance monitoring	Yes
Ground fault monitoring	Yes
Grid monitoring	Yes

Surge protection	Type II
AFCI protection	Optional
Communication	
Display	LED / LCD (Optional)
Communication	Standard：RS485 / USB Optional：WiFi / GPRS / Ethernet
Standard Compliance	
Grid Connection Standards	IEC 61727, IEC 62116, IEC 60068, IEC 61683, VDE-AR-N 4110:2018, VDE-AR-N 4105:2018, VDE-AR-N 4120:2018, EN 50549, AS/NZS 4777.2:2015, CEI 0-21, VDE 0126-1-1/A1 VFR 2014, UTE C15-712-1:2013, DEWA DRRG, NRS 097-2-1, MEA/PEA, C10/11, G98/G99
Safety / EMC	IEC 62109-1:2010, IEC 62109-2:2011, EN 61000-6-2:2005, EN 61000-6-3:2007/A1:2011
General Data	
Dimensions (W x H x D)	481 x 395 x 195 mm
Weight	13.5kg
Operating Temperature Range	-25°C ~ +60°C
Cooling Method	Natural
Protection Degree	IP66
Max. Operating Altitude	4000m
Relative Humidity	0 ~ 100%
Topology	Transformerless
Night Power Consumption	<1W
Warranty	5 years (Standard) / 10 years (Optional)