



## Residential BESS

US5000



### Safety

Multi-protection from self developed BMS



### Optimal Electricity Cost

Long cycle life and superior performance



### Compact Size & East Installation

Module design help for quick installation



### Easy to Scale Up

Be workable to be parallel based on 48V



### Compatibility

Compatible with Tier 1 inverter brands

PYLON

# SPECIFICATION



## Module

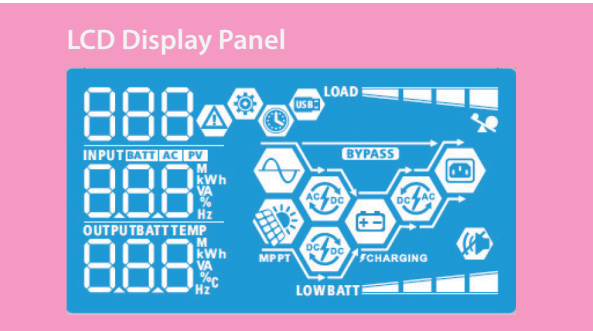
## US5000

## US5000-B

Basic Parameters			
Nominal Voltage (Vdc)		48	48
Nominal Capacity(Wh)		4800	4800
Depth of discharge (%)		95	95
Usable Capacity(Wh)		4560	4560
Dimension(mm)		442*420*161	442*420*161
Weight (Kg)		38	39
Discharge Voltage (V)		44.5 ~ 53.5	44.5 ~ 53.5
Charge Voltage (V)		52.5 ~ 53.5	52.5 ~ 53.5
Charge/Discharge Current (A)	Recommend	75	75
Charge/Discharge Current(A)	Max.	120@15min	120@15min
Charge/Discharge Current (A) 2	Peak 2	200@15sec	200@15sec
Communication		RS485, CAN	RS485, CAN
Configuration (max. in 1 battery group)		16pcs	16pcs
Working Temperature	Charge	0°C ~55°C	0°C ~55°C
Working Temperature	Discharge	-10°C ~55°C	-10°C ~55°C
Shelf Temperature		-20°C ~60°C	-20°C ~60°C
Short current/duration time		<4000A/2ms	<4000A/2ms
Cooling type		Natural	Natural
Breaker		No	Yes
IP rating of enclosure		IP20	IP20
Humidity		5% ~ 95%(RH) No Condensation	5% ~ 95%(RH) No Condensation
Altitude(M)		<4000	<4000
Certification		IEC / CE / UN38.3/UL	IEC / CE / UN38.3/UL
Design life		15+ Years (25°C/77°F)	15+ Years (25°C/77°F)
Cycle Life		>6,000 25°C	>6,000 25°C
Reference to standards)		IEC62619, IEC63056,CE, UN38.3,UL1973, UKCA	IEC62619, IEC63056,CE, UN38.3,UL1973, UKCA,CEC

# Axpert VM III TWIN Off-Grid Inverter

20220001 P1.9.5-23.0



- Dual outputs for smart load management**  
 There are two outputs available. The second output can be scheduled on/off, setting cut-off voltage or SOC and discharging time via LCD setting. It facilitates users smart load control.
- Maximum PV input current 27A**  
 Designed with 27A PV input current, Axpert VM III TWIN is compatible to the market trend of increased Imp in solar panel.

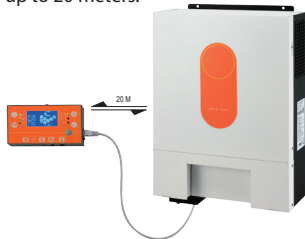
- Supports USB On-the-Go function**  
 VM III TWIN series supports USB On-the-Go function to facilitate data upload/download.



- Wide PV input voltage range 60VDC ~ 450VDC**  
 Now, Axpert VM III TWIN allows wide PV input voltage range from 60VDC to 450VDC. This features allow less solar panel required in the system and save space.

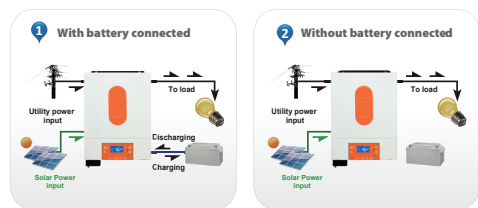
- Reserved communication port (RS-485, CAN-BUS or RS-232) for BMS**  
 This third generation inverter is reserved communication port for BMS. For the detailed information, please contact sales directly.

- Detachable LCD control module with various communications**  
 This detachable LCD control module can be turned to remote panel. Users can install the LCD panel in accessible area away from inverter up to 20 meters.



- Battery equalization extends lifecycle**  
 This inverter charger is built in battery equalization function. This function will help remove sulfation to optimize battery performance and even extend lifecycle.

- Battery independency**  
 Inverter can keep supplying power to the loads from PV energy or the grid without battery connected.



- Integrated WiFi interface with Mobile App**  
 VM III TWIN series is integrated WiFi interface ready for mobile monitoring. Mobile monitoring can be carried out through mobile applications in both iOS and Android. Users can track the history of the unit information such as energy generation and change parameter settings timely.



- User-friendly LCD operation**  
 Users can easily set up or change the charging current, output source and charger source prioritization through LCD control panel to optimize inverter performance.



- Replaceable fan design**  
 VM III TWIN series is designed with replaceable fan. It will simplify the maintenance and reduce the maintenance cost.



## Axpert VM III TWIN Off-Grid Inverter Selection Guide

MODEL	Axpert VM III TWIN 4K	Axpert VM III TWIN 6K
<b>RATED POWER</b>	4000VA/4000W	6000VA/6000W
<b>INPUT</b>		
Voltage	230 VAC	
Selectable Voltage Range	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)	
Frequency Range	50 Hz/60 Hz (Auto sensing)	
<b>OUTPUT</b>		
AC Voltage Regulation (Batt. Mode)	230VAC $\pm$ 10%	
Surge Power	8000VA	12000VA
Efficiency (Peak)	90% ~ 93%	
Transfer Time	10 ms (For Personal Computers) 20 ms (For Home Appliances)	
Waveform	Pure sine wave	
<b>BATTERY</b>		
Battery Voltage	24 VDC	48 VDC
Floating Charge Voltage	27 VDC	54 VDC
Overcharge Protection	33 VDC	63 VDC
<b>SOLAR CHARGER &amp; AC CHARGER</b>		
Solar Charger type	MPPT	
Maximum PV Array Power	5000W	6000W
MPP Range @ Operating Voltage	60 ~ 450 VDC	60 ~ 450 VDC
Maximum PV Array Open Circuit Voltage	500 VDC	500 VDC
Maximum PV Input Current	27A	
Maximum Solar Charge Current	120A	120A
Maximum AC Charge Current	100A	100A
Maximum Charge Current	120A	120A
<b>PHYSICAL</b>		
Dimension, D x W x H (mm)	115 x 300 x 435	
Net Weight (kgs)	9	10
Communication Interface	USB/RS232/RS485/WiFi/Dry-contact	
<b>OPERATING ENVIRONMENT</b>		
Humidity	5% to 95% Relative Humidity (Non-condensing)	
Operating Temperature	-10°C to 50°C	
Storage Temperature	-15°C to 60°C	

Product specifications are subject to change without further notice.

# Vertex S

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE09R.08  
POWER RANGE: 415-435 W

**435 W+**

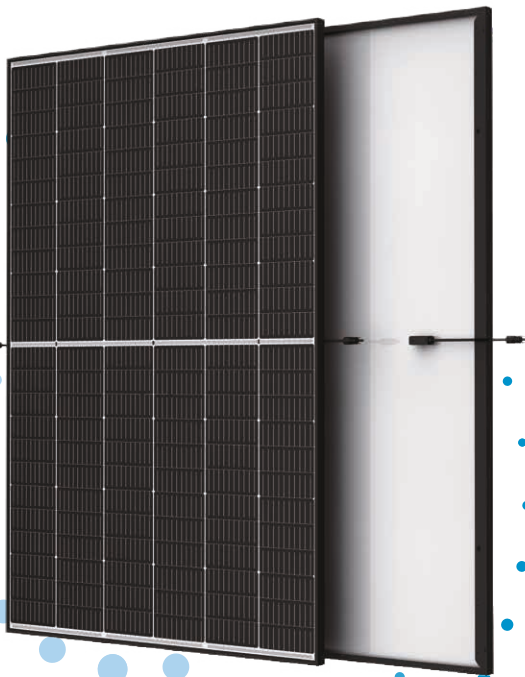
MAXIMUM POWER OUTPUT

**0/+5 W**

POSITIVE POWER TOLERANCE

**21.8 %**

MAXIMUM EFFICIENCY



### Small in size, big on power

- Generates up to 435 W, 21.8 % module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping, lower series resistance, improved current collection and enhanced reliability
- Excellent low light performance (IAM) with cell process and module material optimization



### Universal solution for residential and C&I rooftops

- Designed for compatibility with existing mainstream inverters, optimizers and mounting systems
- Perfect size and low weight for easy handling. Optimized transportation cost
- Reduces installation cost with higher power bin and efficiency
- Flexible installation solutions for system deployment



### High Reliability

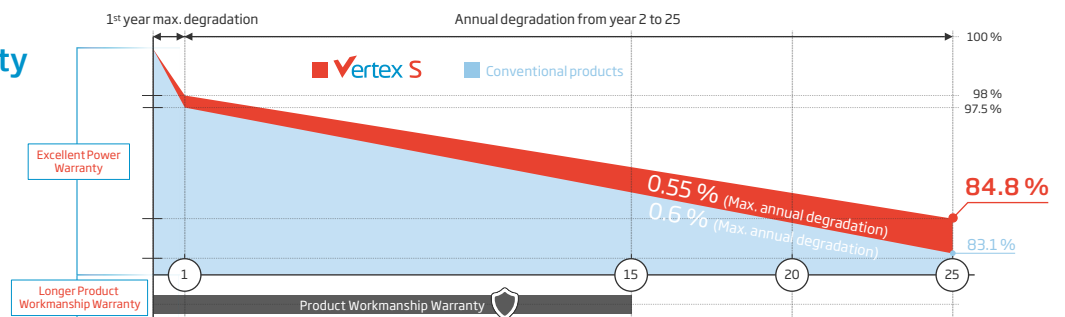
- Positive load up to 6,000 Pa (snow)
- Negative load up to 4,000 Pa (wind)

## Extended Vertex S Warranty

**2 %**  
1<sup>st</sup> year max. degradation

**0.55 %**  
Max. annual degradation from year 2 to 25

**15 Years**  
Product Workmanship Warranty



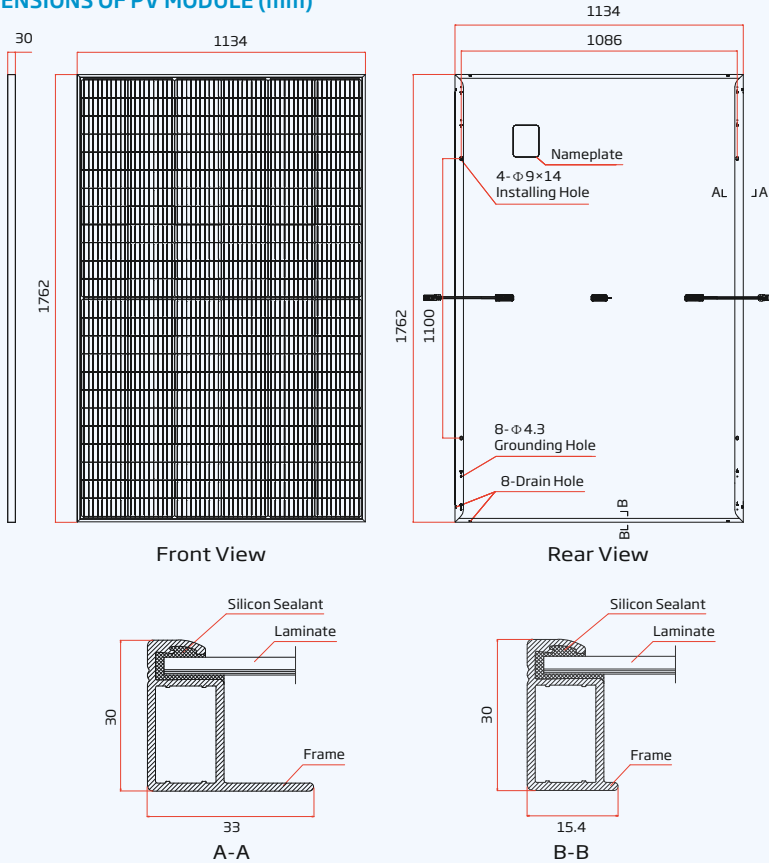
## Comprehensive Product and System Certificates



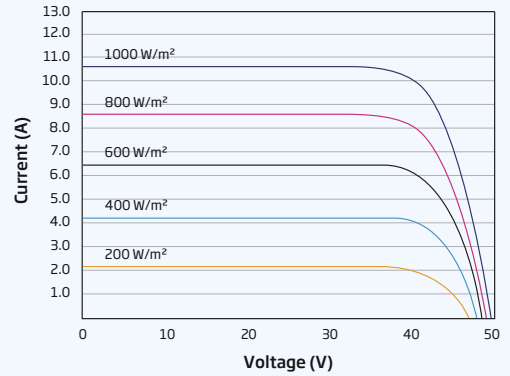
IEC61215/IEC61730/IEC61701/IEC62716  
ISO 9001: Quality Management System  
ISO 14001: Environmental Management System  
ISO14064: Greenhouse Gases Emissions Verification  
ISO45001: Occupational Health and Safety Management System

**Trinasolar**

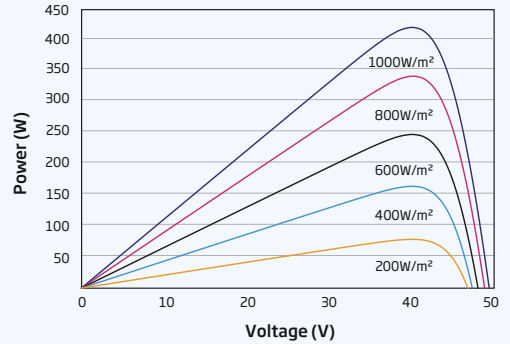
### DIMENSIONS OF PV MODULE (mm)



### I-V CURVES OF PV MODULE (420 W)



### P-V CURVES OF PV MODULE (420 W)



### ELECTRICAL DATA (STC)

	TSM-415 DE09R.08	TSM-420 DE09R.08	TSM-425 DE09R.08	TSM-430 DE09R.08	TSM-435 DE09R.08
Peak Power Watts- $P_{MAX}$ (Wp)*	415	420	425	430	435
Power Tolerance- $P_{MAX}$ (W)	0/+5	0/+5	0/+5	0/+5	0/+5
Maximum Power Voltage- $V_{MPP}$ (V)	41.0	41.3	41.5	41.8	42.0
Maximum Power Current- $I_{MPP}$ (A)	10.11	10.17	10.24	10.30	10.36
Open Circuit Voltage- $V_{oc}$ (V)	49.4	49.7	49.9	50.3	50.6
Short Circuit Current- $I_{sc}$ (A)	10.64	10.69	10.74	10.81	10.86
Module Efficiency $\eta_m$ (%)	20.8	21.0	21.3	21.5	21.8

STC: Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5 \*Measuring tolerance: ±3%

### MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	144 cells
Module Dimensions	1762×1134×30 mm
Weight	21.8 kg
Glass	3.2 mm, High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Backsheet	White
Frame	30 mm Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm <sup>2</sup> Landscape: 1100/1100 mm Portrait: 280/350 mm*
Connector	TS4/MC4 EVO2*

\*Special order only

### ELECTRICAL DATA (NOCT)

	TSM-415 DE09R.08	TSM-420 DE09R.08	TSM-425 DE09R.08	TSM-430 DE09R.08	TSM-435 DE09R.08
Maximum Power- $P_{MAX}$ (Wp)	313	317	321	325	329
Maximum Power Voltage- $V_{MPP}$ (V)	38.5	38.8	39.1	39.4	39.6
Maximum Power Current- $I_{MPP}$ (A)	8.13	8.17	8.21	8.26	8.30
Open Circuit Voltage- $V_{oc}$ (V)	46.5	46.7	46.9	47.3	47.6
Short Circuit Current- $I_{sc}$ (A)	8.58	8.62	8.66	8.71	8.75

NOCT: Irradiance at 800 W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

### TEMPERATURE RATINGS

NOCT(Nominal Operating Cell Temperature)	43 °C (±2 K)
Temperature Coefficient of $P_{MAX}$	-0.34 %/K
Temperature Coefficient of $V_{oc}$	-0.25 %/K
Temperature Coefficient of $I_{sc}$	0.04 %/K

### MAXIMUM RATINGS

Operational Temperature	-40 to +85 °C
Maximum System Voltage	1500 V DC (IEC)
Max Series Fuse Rating	20 A

### WARRANTY

- 15 Year product workmanship warranty
- 25 Year power warranty
- 2% First year degradation
- 0.55% Annual power degradation

(Please refer to the applicable limited warranty for details)

### PACKAGING CONFIGURATION

Modules per box	36 pieces
Modules per 40' container	936 pieces