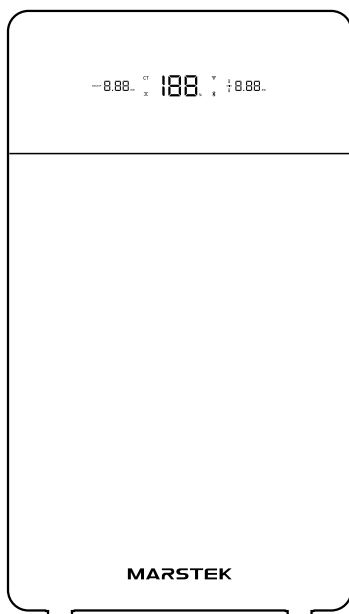


MARSTEK Venus E Max

MST-BIE10-3600



EN

DE

IT

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1.

Product Overview

1.1 Introduction

MARSTEK Venus E Max is an AC-coupled energy storage system, offering three working modes: AI Optimization, Self-Consumption, UPS Mode, and Manual. It can be charged by the grid and supply reliable power to both the grid and household loads.

1.2 Model

This document applies to MARSTEK Venus E Max (2 kVAh, model: MST-BIE2-1500).
The model coding rules are defined as follows:

Product Name	Product Model
MARSTEK Venus E Max	MST-BIE2-1500

MST-BIEX-XXXX

1

2

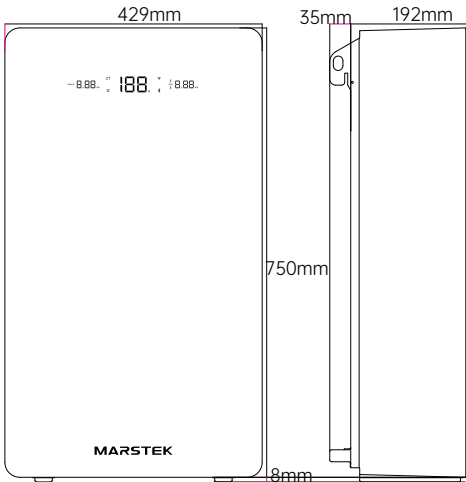
3

4

1	Company name	MST: Marstek Energy Co., Limited.
2	Series name	BIE: MARSTEK VENUS
3	Battery capacity	X: 10 means 10kVAh
4	Power rating	XX: 3600 means 3600W (Maximum output power)

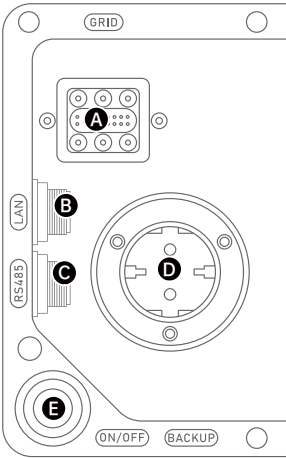
1.3 Product Dimensions

Product Name	Dimensions (mm)
MARSTEK Venus E Max	429 × 227 × 758



1.4 Interface Introduction

The Product interface layout and definitions are shown below.



- A** Grid: Connecting the system to the household grid.
- B** LAN: Wired network connection port.
- C** RS485: 485 protocol communication socket.
- D** BACKUP: AC socket (EU standard) for powering loads during electricity outages.
- E** On/Off Button: Press to turn on/ turn off.

1.5 LED Indicators

The indicator locates on the front of the product and displays the operating status of MARSTEK Venus E Max.



- 1** BACKUP output power
- 2** Connecting a CT meter
- 3** Instructions for Parallel Connection
- 4** State of Charge
- 5** Wi-Fi connection
- 6** Bluetooth connection
- 7** Grid-connected power
- 8** :Product Discharge into the Power Grid
- 8** :The product draws power from the power grid
- 8** :Resting state: No grid-connected input or output status

Indicator	Status	Description
Battery	Off	Power off
	Steady on	Power on
	Light bar goes from left to right	Charging in progress
	Light bar goes from right to left	Discharging in progress

Warn	Off	The device is operating normally
	Red light on	Device fault
Others	Off	Function: Off
	Steady on	Function: On

1.6 Working Modes

- Self-Consumption: Requires a current transformer (CT). When the CT detects an active load, the device immediately supplies power. When the CT detects that the solar PV system is feeding electricity back to the grid, the device starts charging to store energy. By working together, the device and CT create an independent home energy management system that maximizes energy efficiency.
- AI Optimization: Employs AI algorithms to develop cost-effective charging strategies based on the user's electricity consumption, solar generation, and real-time electricity pricing.
- Manual: Executes user-defined charge and discharge strategies.

These three modes can be configured via the app. Please refer to Chapter 3.2 for detailed operation steps.

1.7 Advanced Function

Compensation Function

This function applies to the "Self-Consumption + CT + Load" configuration. When the CT detects active load:

- Single-Phase Compensation:
 - MARSTEK Venus E Max supplies power only to the single-phase load connected to the live wire.
- Three-Phase Total Compensation:
 - MARSTEK Venus E Max distributes power across phases A, B, and C based on load demands to keep the net power fed into the grid close to zero, achieving true zero-export.

For multi-device installations at home, three-phase compensation mode is strongly advised for optimal system performance.

Meter Compatibility Instructions

The MARSTEK Venus E Max device is fully compatible with MARSTEK's own CT002 and CT003 meters. It supports the system's self-consumption and AI optimization modes, ensuring the stability and optimal performance of the system.

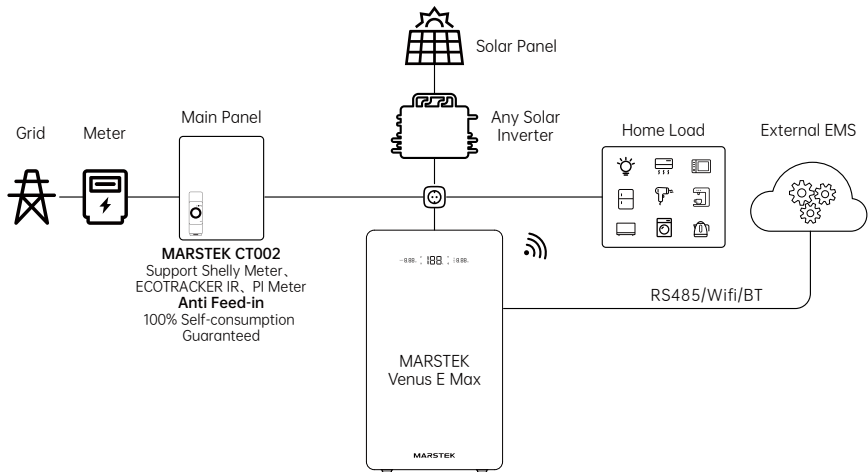
In addition, Venus E Mini is also compatible with the following mainstream brands of meter products, supporting the access and use of corresponding functions:
(Note: Each of the following meter models supports connecting only one device per phase.)

- Shelly Pro 3EM (Shelly) Shelly EM Gen3 (Shelly) Shelly Pro EM-50 (Shelly)
 - Shelly is a registered trademark of SHELLY EUROPE LTD.
- ECOTRACKER IR (Everhome)
 - Everhome is a registered trademark of everHome GmbH.
- PI Meter (Homewizard)
 - Homewizard is a registered trademark of Homewizard B.V.

1.8 System Layout

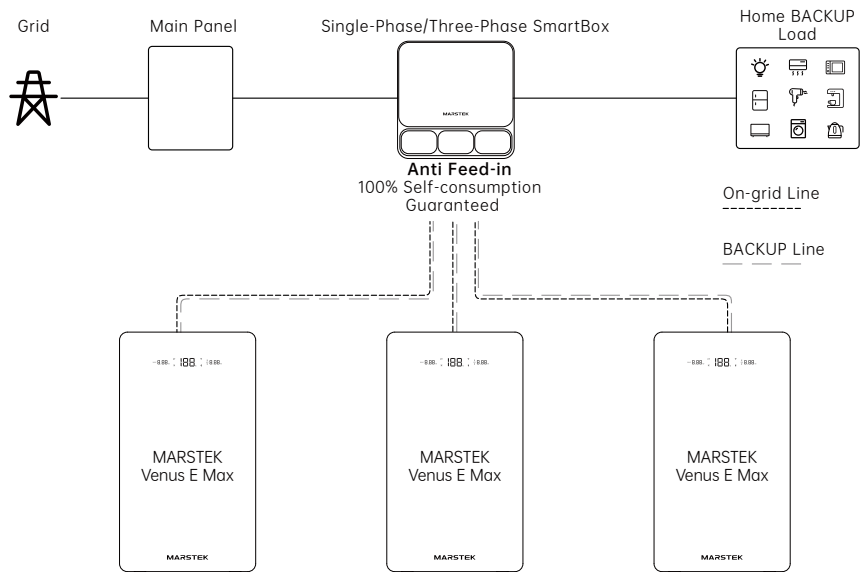
Plug-in Solution

The MARSTEK Venus E Max is compatible with all photovoltaic systems, enabling functions such as self-consumption and AI-based optimization. Below are household application scenarios integrated with solar systems.



Whole-house BACKUP Solution

MARSTEK Venus E Max can also work with the MARSTEK SmartBox to provide whole-home backup power.



2.

Installation Instructions

2.1 Pre-installation Checklist

- Before unpacking the device, inspect the packaging for any visible damage such as holes, cracks, or other signs that may indicate internal issues and verify the device's model number. Do not unpack the device if the packaging is damaged or the model number is incorrect. Instead, contact the dealer immediately.
- After unpacking, examine the device for any visible external damage, such as dents, scratches, or other surface defects. Also, verify that all items listed on the packing list are included. If there is any damage or missing items, please contact the dealer or email support @marstekenergy.com for assistance.

2.2 Selecting the Installation Site

Floor Installation & Angle Requirements

- The energy storage device must be installed in an upright position and must be installed upright, and must not be tilted (forward/backward/sideways), placed horizontally or upside down.

Site Notes

- Recommended installation surfaces: solid brick-concrete structures, concrete walls, concrete floors.
- Alternative surfaces: If other materials (e.g., drywall, wood) are used, they must meet the following conditions:



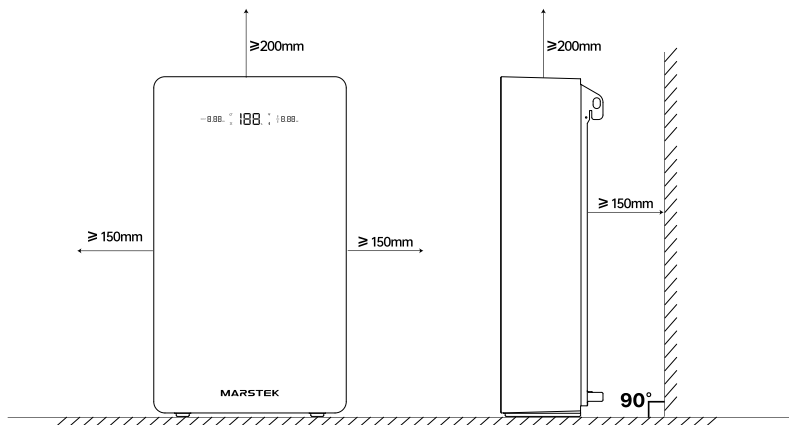
— Be flame-retardant.



— Meet the load-bearing requirements of the equipment.

Clearance & Safety Requirements

- Maintain sufficient clearance around the device to ensure proper heat dissipation and safety isolation; no other equipment may be placed nearby (except VENUS-compatible devices and approved awnings). This is essential to meet the requirements of heat dissipation and safety isolation.

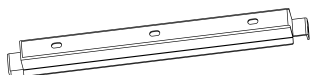


- Prohibited nearby items:
- Other equipment (except VENUS-compatible devices and approved awnings).
Flammable or explosive materials.

2.3 Installing Accessories and Required Tools

Required Accessories

- Before installation, ensure you have the following accessories ready (as listed in the packing list):



Wall-side mounting bracket×1



AC Cable×1



Hexagonal Head Expansion Screws×3



No. 2.5 Allen wrench×1



Cup-head hex socket screws×2

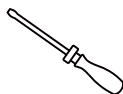


Cylinder-head screw×1

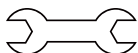
Note: Check all items against the packing list.
Contact the supplier immediately if any accessory is missing or damaged.

Installing Tools

- Tools below are highly recommended:



Screwdrivers



Wrench



Diagonal pliers



Insulating gloves

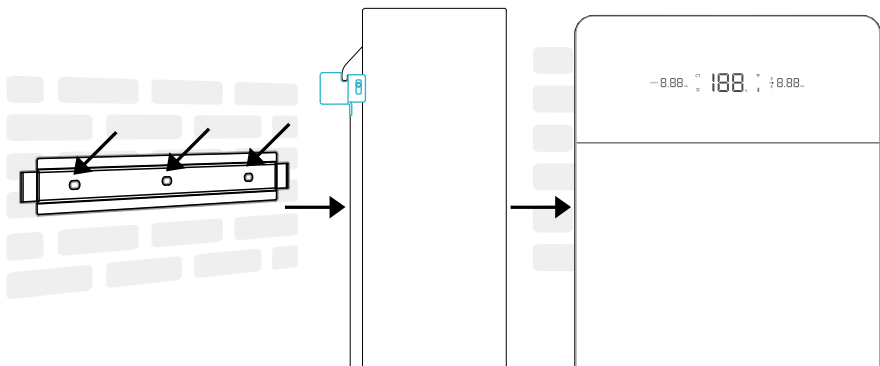


Measuring tape

2.4 Installation Steps

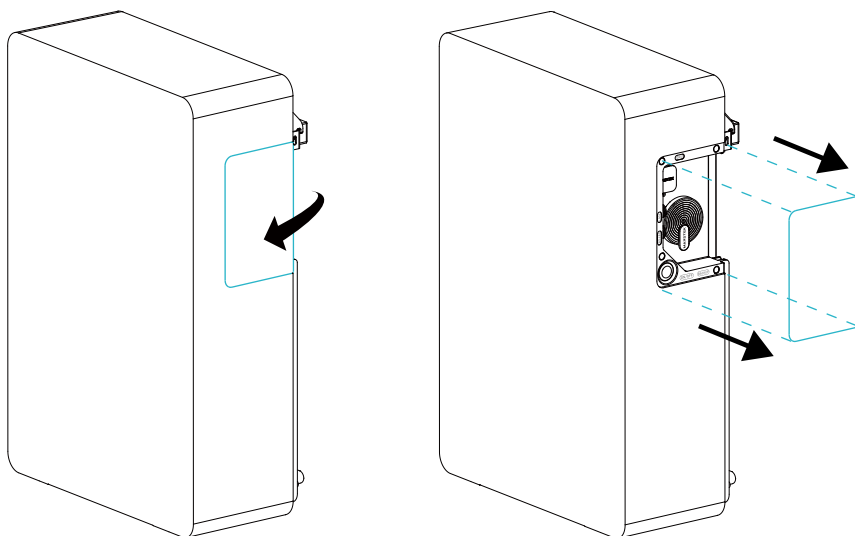
Step1 (Optional step)

- Needed: the MARSTEK Venus E Max device, the unit-side mounting bracket, screws, a screwdriver.
- Actions: Align the screw holes on the unit-side mounting bracket with the corresponding mounting points on both sides of the device. Secure the bracket using the provided screws and a screwdriver.

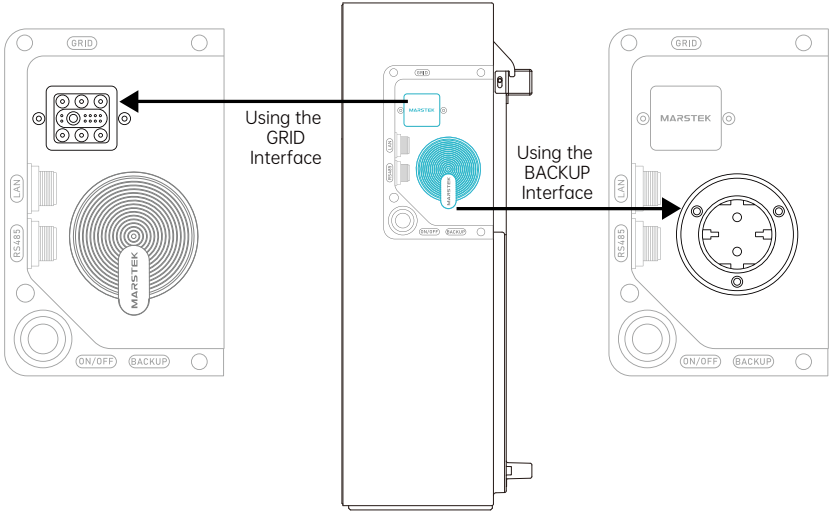


Step 2

- Needed: the MARSTEK Venus E Max device.
- Actions: Before wiring, remove the panel as shown in the figure and take off the dust cover.

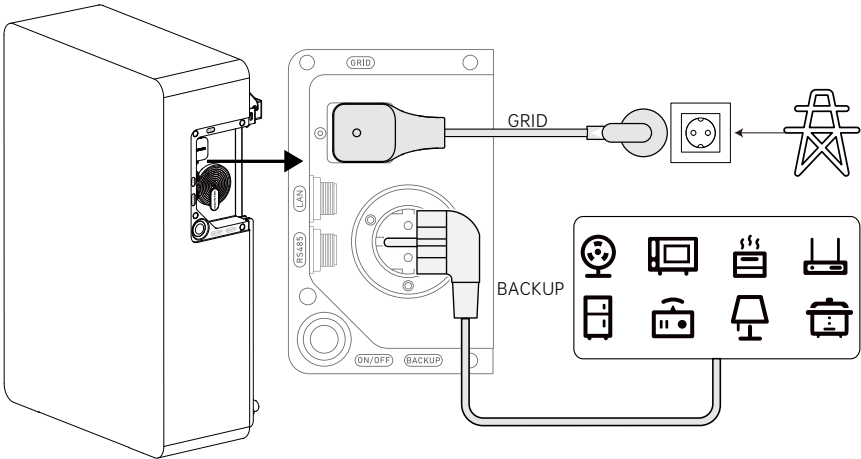


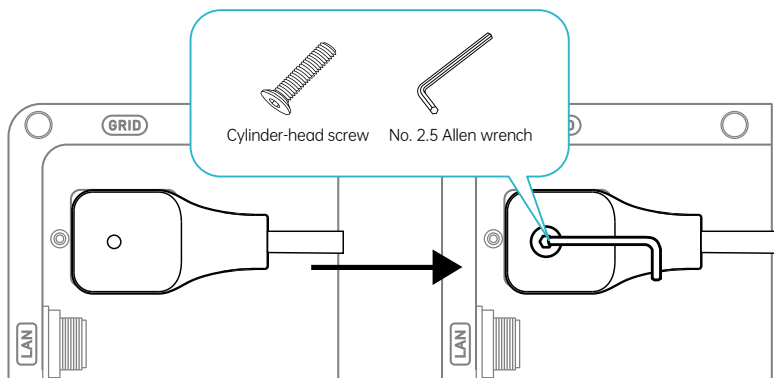
- Use the GRID port to remove the square dust cover , Use the BACKUP port to remove the round dust cover.
- Note: Cover unused ports with the included dust caps to prevent them from being exposed.



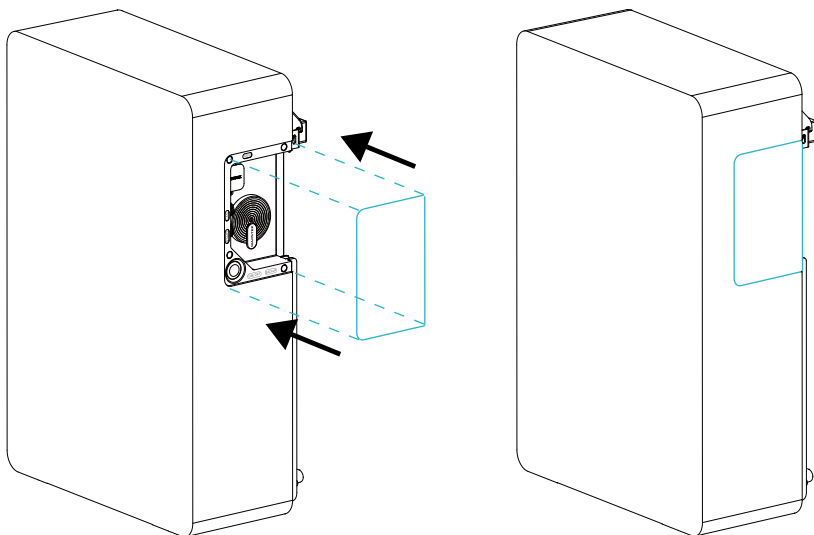
Step 3

- Needed: the MARSTEK Venus E device, AC cable, home-load, Cylinder-head screw, No. 2.5 Allen wrench
- Operating Instructions: Mains Port: Plug the square connector end of the included AC power cord into the Venus device. Use an Allen wrench to tighten the screw into the round hole in the square connector. Plug the connector end into a standard household outlet (mains power). Backup Port: Connect the household load circuit to the backup output outlet.





- Once the wiring is complete, cover the panel with the magnetic cover as shown in the figure.



Warning:

DO NOT connect both the Grid and BACKUP sockets of the MARSTEK Venus E Max device to the city power network. Doing so will cause a circuit break or possible device damage.

Compliance Requirements

To ensure operational safety and optimize device longevity, strict adherence to the following PV charging interface and BACKUP socket connection guidelines is mandatory.

Improper wiring may result in:

- Short-circuit incidents due to voltage/current anomalies.
- System failures from current backflow or configuration incompatibility.
- Critical safety hazards including fire risks.

3.

MARSTEK APP for Smart Control

3.1 QR Code Installation

MARSTEK APP Download: <https://eu.hamedata.com/ems/apk/marstek/index.html>

Scan the QR code to download the APP.



Google Play and the Google Play logo are trademarks of Google Inc.



Apple and the Apple logo are trademarks of Apple Inc.

3.2 APP Operation Guide

Scan the QR code to access the APP Operation Guide.



APP Operation Guide

4.

Maintenance

4.1 Routine Maintenance

- Maintenance must be performed by authorized personnel only.
- When conducting maintenance, make sure to wear personal protective equipment.
- During normal operation of the MARSTEK Venus E Max, ensure the operating environment complies with the requirements in the Technical Specifications chapter. Additionally, the equipment is not exposed to severe weather.
- If the device has problems, do not use it. When problems are solved, resume normal usage.
- Inspect the device at least once a year to ensure all components are intact and heat dissipation components are unobstructed.
- Clean the device with a vacuum cleaner or a dedicated cleaning brush.

	Do Not Dismantle	The MARSTEK Venus E Max should only be repaired by authorized personnel. Users are strictly prohibited from disassembling or repairing any internal components, in order to ensure safe operation and maintain insulation performance.
	AC Output Harness	The AC output harness (also known as the AC tapping cable) must not be replaced. If the wires become damaged, the entire device must be scrapped.
	Disconnection from Power Source	Unless specified conditions, otherwise, always disconnect the device from the grid by unplugging it from the socket before performing any maintenance or repairs.
	Cleaning Instructions	Do not use cleaning rags made from filamentous or corrosive materials, as these can generate static electricity or cause corrosion.
	Repairs	Do not attempt to repair the product yourself. Always use qualified parts when servicing the device.
	Circuit Breaker Requirements	Each branch line must be equipped with a circuit breaker; a central protective device is not required.

4.2 Troubleshooting

In the event of device malfunction, please follow these steps:

- Verify all electrical connections and battery status.
- Restart the system following the proper power cycling procedure.
- Consult the User Manual or FAQ section for known issues and resolutions.

Should the issue persist, please contact our Customer Support Department with the following information:

- Complete device specifications.
- Detailed description of the fault condition.
- Any observed error codes or indicators.

Codes	Alarm range	Alarm status	Suggested treatments
400	Inverter Side	Overheat Protection	1. Check the ventilation in the inverter installation area and whether the ambient temperature exceeds the maximum allowable range. 2. If ventilation is insufficient or the temperature exceeds the range, please improve its ventilation and heat dissipation conditions. 3. If the issue remains unsolved, please contact the technical team.
401	Inverter Side	Self-test failed	1. Please try to restart. 2. If the issue remains unsolved, please contact the technical team.
402	Inverter Side	Eeprom read and write exception	1. Please try to restart. 2. If the issue remains unsolved, please contact the technical team.
405	Inverter Side	Off-grid output over-power protection	1. The instantaneous power on the off-grid side is too high, please reduce the off-grid power consumption. 2. If the issue persists at low power loads, please contact the technical team.
410-430	Inverter Side	Abnormality within the device	1. Wait half a minute for the inverter to return to normal. 2. If the issue remains unsolved, please try to restart or contact the technical team.
431	BAT Side	Unable to communicate with BMS	1. It may be caused by low battery voltage. Connect the battery to reactivate within 5 minutes. The issue disappears after the activation. 2. If the issue remains unsolved, please try to contact the technical team.
432	BAT Side	Battery overvoltage	If the issue remains unsolved, please try to contact the technical team.

433	BAT Side	Battery overcurrent	If the issue remains unsolved, please try to contact the technical team.
434	BAT Side	Battery undervoltage	1. Please ensure the grid-connected socket is properly connected. 2. If the issue remains unsolved, please try to contact the technical team.
440/ 441	Grid Side	Grid overvoltage	1. Grid fluctuations and loose connections may trigger this fault. 2. Check whether the grid is properly connected and wait for the grid to return to normal.
442	Grid Side	Grid undervoltage	1. Grid fluctuations and loose lines may trigger this fault. 2. Check whether the grid is connected correctly and wait for the grid to return to normal.
443	Grid Side	Grid overfrequency	1. Grid fluctuations and loose lines may trigger this fault. 2. Check whether the grid is connected correctly and wait for the grid to return to normal.
444	Grid Side	Grid underfrequency	1. Grid fluctuations and loose lines may trigger this fault. 2. Check whether the grid is connected correctly and wait for the grid to return to normal.
445	Grid Side	Grid-connected overcurrent	1. Check if the grid is properly connected. If so, it will return to normal within one minute. 2. Restart the inverter. 3. If the issue remains unsolved, please try to contact the technical team.
446	Grid Side	Grid fluctuations	1. Grid fluctuations and loose lines may trigger this fault. 2. Check whether the grid is connected correctly and wait for the grid to return to normal.
447	Inverter Side	DCI protection/ output DC component protection	1. Grid fluctuations and loose lines may trigger this fault. 2. Check whether the grid is connected correctly and wait for the grid to return to normal.
448	Inverter Side	DCV protection/ grid voltage direct component protection	1. Grid fluctuations and loose lines may trigger this fault. 2. Check whether the grid is connected correctly and wait for the grid to return to normal.

530/ 558		Over temperature limit	1. Check the ventilation in the inverter installation area and whether the ambient temperature exceeds the maximum allowable range. 2. If ventilation is insufficient or the temperature exceeds the range, please improve its ventilation and heat dissipation conditions. 3. If the issue remains unsolved, please contact the technical team.
559		Low temperature limit	1. Check whether the ambient temperature meets the requirements. 2. If the ambient temperature is normal but the issue remains unsolved, please try to contact the technical team.
560		Low battery	1. The issue may be caused by the battery low power, please connect the grid. 2. If the issue remains unsolved, please try to contact the technical team.
5C0		Bluetooth status is abnormal	1. Check if the correct device and APP are being connected. The issue will be solved after a period of time. 2. If the issue remains unsolved, please try to contact the technical team.
5C1		OTA update failed	1. The issue will be solved after re-upgrading. 2. If the issue remains unsolved, please try to contact the technical team.
5C2/ 5C3/ 5C4		Abnormal WiFi signal	1. Check if the Wi-Fi connection between the device and home network is stable. 2. If the issue remains unsolved, please try to contact the technical team.
5C8- 5CB		Network abnormal	1. Check if the home network is normal, the issue may occur occasionally due to network fluctuations and will automatically resolve after a while. 2. If the issue remains unsolved, please try to contact the technical team.
5D2		CT connection abnormality	1. Check if the CT is properly connected to the home network and ensure the home network is stable. 2. If the issue remains unsolved, please try to contact the technical team.

5.

Technical Specifications

Model	MARSTEK Venus E Max
AC: Grid-Tied Input	
Rated Input Power	3600 VA
Operating Phase	L / N / PE
Rated Grid Voltage	230V / 220V
Rated Grid Frequency	50Hz / 60Hz
Rated Grid Input Current	15.65A
Power Factor	>0.99
THDi	<3%
AC: Grid-Tied Output	
Rated Output Power	800VA / 3600VA
Operating Phase	L / N / PE
Rated Grid Voltage	230V / 220V
Rated Grid Frequency	50Hz / 60Hz
Rated Grid Output Current	3.48A / 15.65A
Power Factor	>0.99 default (-0.8~0.8 adjustable)
THDi	<3%
AC: Off-Grid Output	
Rated InputOutput Power	3600 VA
Peak InputOutput Power	3780 VA,60S
Rated InputOutput Current	15.65 A
Rated Voltage	230 V
Rated Frequency	50Hz
THDu	<3%
Battery Parameters	
Nominal Voltage	32V
Capacity	10.048kWh (314Ah×10S)
Cycle Life	>10000(25℃)
Batttery Type	LiFePO4
Depth of Discharge(DOD)	90%
Efficiency	
Max. Efficiency(Battery side and AC side cycle	>92%
Protection	
Protection Class	I
Overvoltage Category	DC II / AC III

Protection	
Dimensions	429×227×758mm
Weight	85±1 Kg
Ambient Temperature Range	-20~+60 °C (Storage :-30~+85
Relative Humanity	0-95%
Ingress Protection Rating	IP65
Cooling Method	Natural Convention
Maximum Altitude	2000m
Grid-Connected AC Port	Grid Port
Off-Grid Port	European Standard Socket
Display	LCD
Communication	Bluetooth, WiFi, LAN

Safety Precaution

- The MARSTEK Venus E Max series has been designed and tested in accordance with international safety standards. However, safety regulations must still be followed during the installation and operation of the MARSTEK Venus E Max series. Installers must read, understand and strictly follow all instructions, precautions and warnings in this manual.
- Reverse engineering, decompiling, disassembling, modifying, or performing any derivative operations on the device software is strictly prohibited. Studying the internal implementation logic, obtaining the source code, infringing intellectual property rights in any way, or disclosing the results of software performance tests is also forbidden.
- All operations including transportation, storage, installation, usage and maintenance must comply with applicable laws, regulations, standards and specifications.
- This equipment must be used in an environment that meets the specified design conditions. Equipment failure, malfunction or component damage caused by an improper operating environment is not covered by the product warranty. The company will not be liable for any compensation related to personal injury, property loss, etc.

The Company shall not be liable for any of the following circumstances or their consequences:

- Equipment damage caused by natural disasters eg. earthquakes, floods, volcanic eruption, mudslides, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, extreme weather, or force majeure events.
- Failure to operate the equipment within the conditions specified in this manual.
- Installation and usage in environments that do not comply with relevant international, national, or regional standards. Installation or operation conducted by authorized personnel.
- Failure to follow the operating instructions and safety warnings provided in the product documentation.
- Unauthorized disassembly, modification of the product including alternations to the software code.
- Damage incurred during transportation by the user or by a third party acting on behalf of the user.
- Damage resulting from storage conditions that do not meet the product documentation requirements.
- Use of materials and tools that violate local laws, regulations, or applicable standards.
- Damage resulting from negligence, gross negligence, intentional misconduct, improper operation, or any other causes not attributable to the Company.

Personal Safety

- Turn off the power before installation. Do not install or remove cables while the device is energized.
- Improper operation of energized equipment may cause fire, electric shock or explosion, leading to property damage, personal injury or even death.
- Before beginning any operation, remove conductive objects such as watches, bracelets, rings, and necklaces to avoid electric shock.
- Use dedicated insulated tools during operation to prevent electric shock or short circuits.
- Do not directly or indirectly contact with other conductors or indirectly contact power supply equipment through damp or wet objects.
- Do not power on the equipment until it has been correctly installed or confirmed by a professional.
- Only qualified professionals or properly trained personnel are allowed to install, operate, or maintain this equipment.

- If there is any risk of personal injury or equipment damage during operation, cease work immediately and report the incident.
- Do not touch the equipment when energized, as its surface may be hot.

Electricity Safety

- Before installation, ensure that the equipment is intact. Otherwise, electric shocks or fires may occur.
- Non-standard and improper operations may result in fire or electric shocks.
- Prevent foreign matter from entering the equipment during operations.
- For the equipment that needs to be grounded, install the ground cables first when installing the equipment and remove the ground cables last when removing the equipment.
- Disconnect the equipment and its switches before installing or removing any power cables.
- Do not damage the grounding conductors.
- Equipment terminals should only be used for electrical connections.
- Ensure all electrical connections comply with local electrical codes and standards.
- Obtain approval from the local utility company before operating the device in grid-tied mode.
- Use dedicated insulated tools for all high-voltage operations.
- Repairs must be performed with qualified and compliant parts, installed by an authorized contractor or service representative of Marstek Energy Co., Limited. Such components must only be used for their intended and certified purposes.
- Do not expose the device to flammable/explosive gases or smoke, and do not operate the device in such environments.
- Do not store any flammable or explosive materials near the equipment.
- Install the equipment in a dry, well-ventilated area, away from any liquids.
- Ensure ventilation openings or heat dissipation systems are not blocked to prevent overheating or fire.

Mechanical Safety

- Do not drill holes into the equipment.
- Wear goggles and protective gloves when drilling holes.
- Be cautious to avoid injury when moving heavy objects.

SYMBOL CONVENTION

The following symbols may appear in this document and their meanings are as follows:

	Danger	This symbol indicates a dangerous situation that could cause a fatal electrocution hazard, serious personal injury, or fire.
	Warning	This symbol indicates instructions that must be followed carefully to avoid potential safety hazards.
	Careful	This symbol indicates that the operation is prohibited. The relevant personnel should stop the operation and only proceed after being fully cautious and fully understanding the operation.

Box Marking

	Electric shock hazard	When the ENERGY CUBE is working, there is high voltage. It is strictly forbidden to touch it to prevent electric shock.
	Operation Alert	There are potential dangers when the ENERGY CUBE is powered on. Please take corresponding protection when operating the inverter.
	Anti-scalding warning	The outer shell temperature of the ENERGY CUBE is very high when it is working, there is a risk of burns, so it is strictly forbidden to touch it.
	Disposal	In order to comply with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and other electronic equipment scrapping regulations implemented as national laws, electrical equipment that has reached the end of its service life must be collected separately and sent to approved recycling plants. If the ENERGY CUBE is in a waste state, please be sure to return it to an authorized dealer or an approved recycling plant.
	View Instructions	Please read the user manual before installation.
	CE Marking	The ENERGY CUBE complies with the EU low voltage directive.
		The product is reusable.
		Indicates the position for connecting the protective earthing (PE) cable.

MARSTEK
Power Anywhere & Anytime