

Quick Installation Guide

Zevelution 1000S
Zevelution 1500S
Zevelution 2000S
Zevelution 3000S



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for Zevercloud APP

532-08114-05

EN



Android



iOS



Website



Manual

2.Ambient conditions and mounting location

- Mount the inverter in areas where it cannot be touched inadvertently.
- Ensure good access to the inverter for installation and possible service.
- Ambient temperature should be $\leq 40^{\circ}\text{C}$ to ensure optimal operation.
- Ensure optimum operation and extend service life by avoiding exposing the inverter to direct sunlight, rain and snow.
- The mounting method, location and surface must be suitable for the inverter's weight and dimensions.
- Mount the inverter vertically or tilted backward by max. 15° .
- The electrical connection area must point downwards.
- Do not cover the inverter.
- Observe the recommended clearances to walls, other inverters, or objects as follows to ensure sufficient heat dissipation.

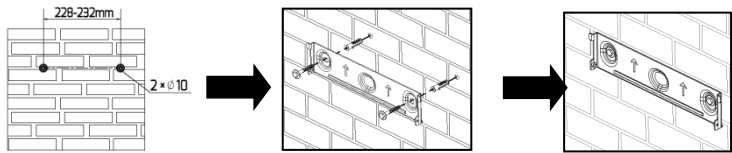
Direction	above	below	sides
Recommended clearance	300mm	300mm	200mm

3.Checking scope of delivery

Inverter	Wall bracket	Mounting accessory kit	DC plug connector	AC plug connector	Smart meter Connector (optional)	WiFi antenna (optional)	Magnetic Ring	Document
1X	1X	1X	1X	1X	1X	1X	1X	1X

4.Mounting

1. Use a $\Phi 10\text{mm}$ bit to drill 2 holes at a depth of about 70mm, insert the wall anchors and attach the wall bracket to the wall.



2. Hook the inverter into the wall bracket. Ensure that the inverter is securely in place.

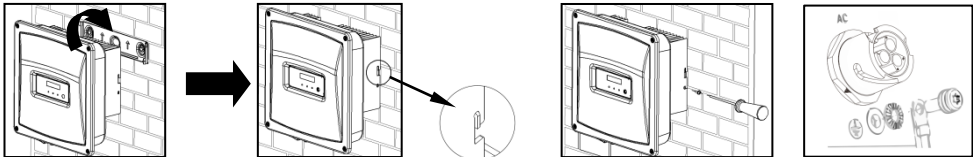


Figure A

Figure B

3. Attach the outer fins of heat sink to both sides of the wall bracket using M5 screws, as shown in Figure A. Please connect an additional grounding as shown in Figure B, using T25 screwdriver with torque 2.5Nm.

1.Safety

1.1 Intended Use

- 1) Zevelution is a transformerless photovoltaic (PV) inverter with one MPP tracker which converts the direct current of the PV array into grid-compliant alternating current, and feeds it into the utility grid.
- 2) The product must only be operated by qualified persons with the appropriate skills who have already read all documentation relating to its installation, commissioning, operation and maintenance.
- 3) The product is suitable for indoor and outdoor use.
- 4) The product must only be operated with PV arrays of protection class II in accordance with IEC 61730, application class A. Do not connect any sources of energy other than PV modules to the inverter.
- 5) PV modules with a high capacity to ground must only be used if their coupling capacity is less than $1.0\mu\text{F}$.
- 6) When exposed to sunlight, the PV array generates dangerous DC voltage which is present in the DC conductors and the live components of the inverter. Touching the DC conductors or the live components can lead to lethal electric shocks.
- 7) The product is also approved for the Australian market and may be used in Australia. If DRM support is specified, the inverter may only be used in conjunction with a Demand Response Enabling Device (DRED). This ensures that the inverter implements the commands from the grid operator for active power limitation at all times. The inverter and the Demand Response Enabling Device (DRED) must be connected in the same network and the inverter communication interface must be activated.

1.2 Safety Information

DANGER

Danger to life due to high voltages of the PV array

When exposed to sunlight, the PV array generates dangerous DC voltage which is present in the DC conductors and the live components of the inverter. Touching the DC conductors or the live components can lead to lethal electric shocks. If you disconnect the DC connectors from the inverter under load, an electric arc may occur leading to electric shock and burns.

- Do not touch non-insulated cable ends.
- Do not touch the DC conductors.
- Do not touch any live components of the inverter.
- Have the inverter mounted, installed and commissioned only by qualified persons with the appropriate skills.
- If an error occurs, have it rectified by qualified persons only.
- Prior to performing any work on the inverter, disconnect it from all voltage sources as described in this document.

DANGER

Danger to life due to electric shock

Touching an ungrounded PV module or array frame can cause lethal electric shocks.

- Connect and ground the PV modules, array frame and electrically conductive surfaces so that there is continuous conduction. Observe the applicable local regulations.

1.3 Symbols

Icon	Explanation	Icon	Explanation
	Danger		Time need to discharge stored energy
	Hazardous voltage		Grounding conductor
	Hot surfaces		Observe the documentation

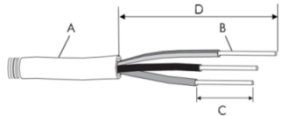
5.AC Connection

DANGER

Danger to life due to high voltages in the inverter

Before performing the electrical connection, ensure the DC switch & AC circuit breaker are switched off and cannot be reactivated.

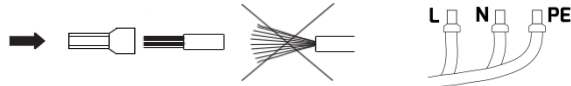
1. AC cable requirements as follows:



Object	Description	Value
A	External diameter	9 mm to 14 mm
B	Copper conductor cross-section	2.5 mm^2 to 6 mm^2
C	Stripping length of the insulated conductors	approx. 12 mm
D	Stripping length of the outer sheath of the AC cable	approx. 50 mm

The PE conductor must be 8mm longer than the L and N conductors

2. Insert the conductor into the suitable ferrule acc. to DIN 46228-4 and crimp the contact.



3. Unscrew the swivel nut from the threaded sleeve, then thread the swivel nut and threaded sleeve over the AC cable(Figure C).

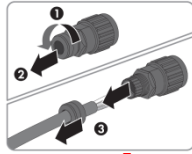


Figure C

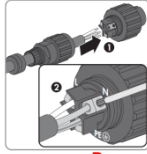


Figure D

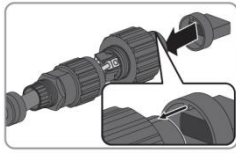


Figure E

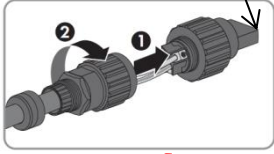


Figure F

4. Insert the crimped conductors L, N and PE into the corresponding terminals and tighten the screw with a Torx screwdriver(TX 8,torque:1.4Nm). Ensure that all conductors are securely in place in the screw terminals on the bush insert(Figure D).
5. Assemble the socket,threaded sleeve and swivel nut together. Put the plastic fixture on the socket with the key inserted and grip it(Figure E), then screw the threaded sleeve and swivel nut(Figure F).
6. Plug the AC connector into the jack for the AC connection and screw tight. When doing so, align the AC connector so that the key on the inverter AC jack is inserted into the keyway on the AC connector bush insert(Figure G).

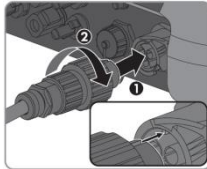
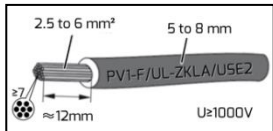


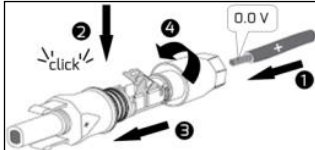
Figure G

6.DC Connection

1. DC cable requirements as follows:




2. Lead the stripped cable all the way into the DC plug connector. Press the clamping bracket down until it audibly snaps into place. Push the swivel nut up to the thread and tighten the connector (SW15, torque: 2.0Nm).
3. Connect the assembled DC plug connectors to the inverter.

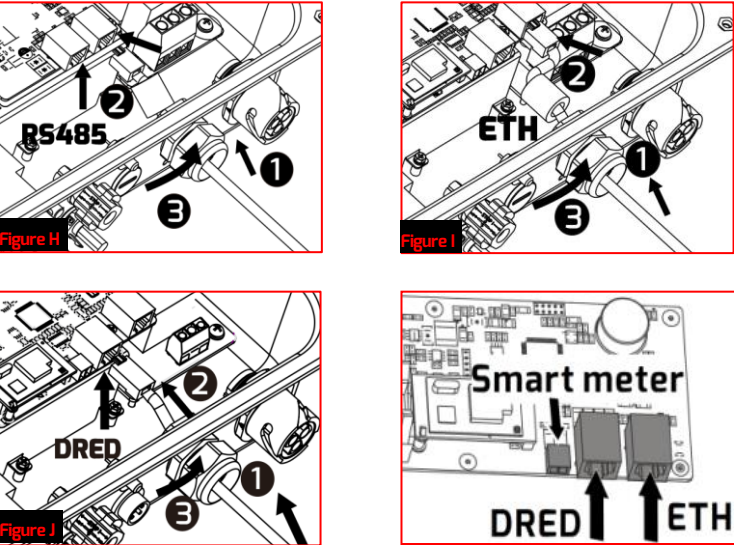
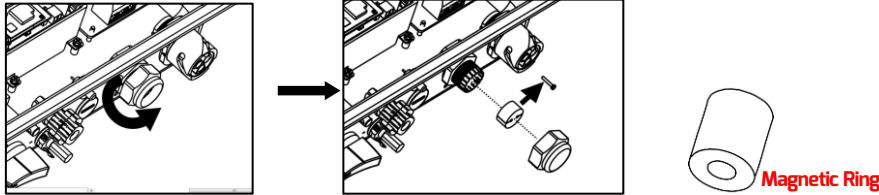


7.Communication setup

1. RS485, Ethernet and DRED connection
- Cable requirement :
- Shielding
 - CAT-5E or higher
 - UV-resistant for outdoor use
 - RS485 cable maximum length 1000m
 - Ethernet cable maximum length 100m, standards for structured cabling according to EIA/TIA-568B

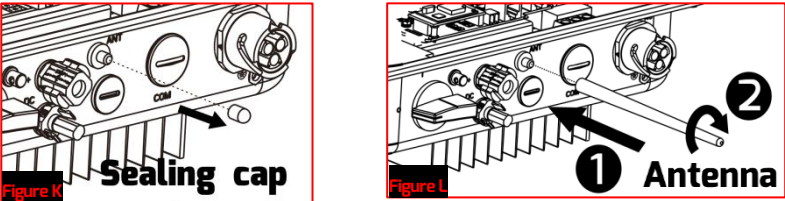
Pinout assignment for RJ45			
Pin No.	RS485	DRED	
Pin1	TX_RS485A	DRM 1/5	
Pin2	TX_RS485B	DRM 2/6	
Pin3	RX_RS485A	DRM 3/7	
Pin4	GND	DRM 4/8	
Pin5	GND	RefGen	
Pin6	RX_RS485B	Com/DRMO	
Pin7	+7V	N/A	
Pin8	+7V	N/A	

- 1.1. Loosen the four screws of the cover using a T25 screwdriver, then remove the cover.
- 1.2. Unscrew the swivel nut of the M25 cable gland, take out the sealing insert and remove one filler-plug.
- 1.3. Route the cable into the inverter through the M25 cable gland ,and pass through the magnetic ring (needed when the communication connection is RS485 and Ethernet),then connect it.
- For RS485 communication, there are two RJ45 ports mounted , you can choose one of them. (Figure H).
- For Ethernet communication (optional), the RJ45 port is located on the right of the board(Figure I), please make sure that the router's DHCP function is activated.
- For DRED connection (for AU only), the RJ45 port is located on the left of the board (Figure J).



- 1.4. Screw the swivel nut and the cover (torque: 2.5 Nm) using a T25 screwdriver.

2. WLAN connection(optional)
- 2.1. Take off the sealing cap(Figure K).
- 2.2 Tighten the antenna to the ANT connection port(Figure L).



3. Smart meter connection (optional)
- 3.1. Cable requirements:
- | Object | Description | Value |
|--------|---|---------------------|
| A | External diameter | 5 mm to 8 mm |
| B | Conductor cross-section | 0.14 mm² to 1.5 mm² |
| C | Stripping length of the insulated conductors | approx. 9 mm |
| D | Stripping length of the outer sheath of the cable | approx. 30 mm |
- 3.2. Route the cable into inverter through the M25 cable gland. Cable connection referring to section 7.1.
- 3.3. Connect the conductors to the supplied smart meter connector (FigureM) , screwdriver type: blade 0.4 × 2.5. When doing so, ensure the conductors are plugged completely into the terminal up to the insulation.
- 3.4. Plug the assembled smart meter connector into the pin connector on the upper board (Figure N).
- 3.5. Press the sealing insert back into the cable gland. Screw the swivel nut hand-tight onto the cable gland.
- 3.6.Tighten the cover to the inverter using the 4 screws and a Torx screwdriver (TX25, torque: 2.5 Nm).

8.Commissioning

- Check
- Make sure that the inverter and wall bracket have been correctly mounted.
 - Check that the inverter has been reliably grounded.
 - Make sure that the DC connectors have the correct polarity.
 - Make sure that the open-circuit voltage of the PV array on the coldest day based on statistical records does not exceed the maximum input voltage of the inverter.
 - Make sure that the resistance between PV arrays and ground is greater than 1Mohm.
 - Make sure that all DC connectors are securely in place.
 - Check that the grid voltage at the connection point of the inverter is within the permitted range.
 - Make sure that the AC circuit breaker has been correctly rated and wired.
 - Make sure that the AC cable has been correctly rated and wired.
 - Make sure that the cable communication connectors have been correctly wired and tightened.
 - Make sure that the communication and AC cable glands have been correctly mounted and tightened.
 - Make sure that the antenna (optional) has been tightened.
 - Make sure that the cover has been correctly mounted.
 - Make sure that cables are routed in safe place or protected against mechanical damage.
- Startup
- After finishing the above checks, switch on the DC switch, then check various settings in the display and make changes if necessary. Ensure the correct safety setting has been selected for the region, then switch on the AC circuit breaker. When there is sufficient DC voltage applied and the grid connection conditions are met, the inverter will start operating automatically.

9. Technical Data

	Zeverlution 1000S	Zeverlution 1500S	Zeverlution 2000S	Zeverlution 3000S
DC Input				
Max. PV array power(STC)	1430Wp	2140W	2860W	3900W
Max. DC power(@cosφ =1)	1150W	1750W	2350W	3150W
Max. DC input voltage	500V			600V
MPP voltage range	70-450V			70-520V
Min. DC start voltage	80V			
Max. DC input current	11A			
Number of independent MPP inputs	1			
Strings per MPP input	1			
AC Output				
Rated active power	1000W	1500W	2000W	3000W
Max. apparent AC power	1100VA	1650VA	2200VA	3000VA
Max. apparent AC power (For Belgium)	1000VA	1500VA	2000VA	3000VA
Rated grid voltage	220V, 230V, 240V			
AC power frequency	50Hz, 60Hz			
Max. AC continuous output current	5.5A	7.5A	10A	15A
Recommended line circuit breaker	B16			B20
Adjustable displacement power factor	0.8Ind...0.8cap			
Harmonic distortion (THD) at rated output	< 3%			
Communication interfaces				
RS485	●			
RS485 ¹⁾ & Ethernet & WLAN ²⁾ & a.RJ45 ³⁾ (DRED)	○			
General Data				
Earth fault alarm	cloud based, audible and visible (AU)			
Dimensions (W×H×D)	346×346×132mm			346×346×146mm
Weight	6.5kg			6.8kg
Noise emission (typical)	< 15 dB(A)@1m			
DC connection	SUNCLIX DC connector			
AC connection	Plug-in connector			
Operating temperature range	-25°C...+60°C			
Relative humidity (non-condensing)	0% ... 100%			
Max. operating altitude	4000m (>3000m derating)			
Degree of protection (acc. to IEC 60529)	IP65			
Climatic category (acc. to IEC 60721-3-4)	4K4H			
Topology	Transformerless			

● standard ○ optional

1) for O-export with smart meter 2) Radio technology: WLAN 802.11 b / g / n, Radio spectrum: 2.4 GHz

3) only functional in AU & NZL

10. EU Declaration of Conformity

- Within the scope of the EU directives
- Electromagnetic compatibility 2014/30/EU (L 96/79-106, March 29,2014) (EMC).
 - Low Voltage Directive 2014/35/EU.(L 96/357-374, March 29, 2014)(LVD).
 - Radio Equipment Directive 2014/53/EU (L 153/62-106. May 22. 2014) (RED).
- SMA New Energy Technology (Jiangsu) Co., Ltd. confirms herewith that the inverters described in this document are in compliance with the fundamental requirements and other relevant provisions of the abovementioned directives. The entire EU Declaration of Conformity can be found at www.zeversolar.com.



11. Contact

- If you have technical problems with our products, please contact our service.
- We require the following information in order to provide you with the necessary assistance:
- Inverter device type
 - Inverter serial number
 - Type and quantity of PV modules connected
 - Error code
 - Mounting location
 - Warranty card

Factory Warranty

Warranty card will be shipped with inverter. You can download the current warranty conditions at www.zeversolar.com/service/warranty.

Regional services are available by contacting the following numbers during working hours:

Australia Phone: +61 13 00 10 18 83 E-Mail: service.au@sma-solar.com	Europe Phone: +49 221 48 48 52 70 E-Mail: service.eu@sma-solar.com
China(incl. Hong Kong, Macau) Phone: 400 801 9996 E-Mail: service.china@sma-solar.com	Rest of the world E-Mail: service.row@sma-solar.com

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For more information, please download the user manual and other technical documents at www.zeversolar.com.

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