

Quick Installation Guide
Zeverlution 3680/4000/5000



532-08111-03



www.zeversolar.com

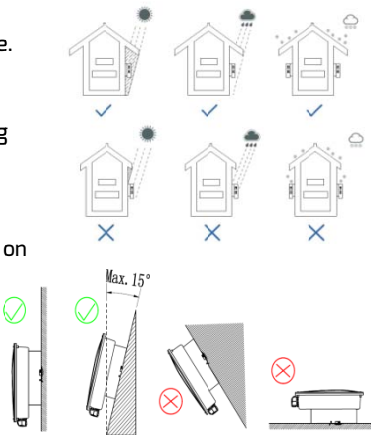
1.Safety

1. Zeverlution is a transformerless photovoltaic (PV) inverter with two MPP trackers which converts the direct current of the PV array into grid-compliant alternating current, and feeds it into the utility grid.
2. Zeverlution 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. Zeverlution is suitable for indoor and outdoor use.
4. Zeverlution 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 be used if their coupling capacity does not exceed 1.0 μ 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. All components must remain within their permitted operating ranges at all times.
8. Zeverlution complies with the Low-Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU. Zeverlution also complies with the requirements of safety and EMC in Australia and New Zealand markets. The inverter labels with the CE mark and RCM mark. For more information about certificates in other countries and regions, please visit website (www.zeversolar.com).

Icon	Explanation	Icon	Explanation
	General warning - important safety information		Time need to discharge stored energy
	Hazardous voltage		WEEE designation
	Hot surfaces		Observe the documentation

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.
- Install the inverter in an environment with good ventilation.
- 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.
- If mounted in a residential area, we recommend mounting the inverter on a solid surface, plasterboard and similar materials are not recommended due to audible vibrations when in use.
- Do not put any objects on the inverter. Do not cover the inverter.
- Mount the inverter vertically or tilted backward by max. 15°
- The electrical connection area must point downwards.
- Observe the recommended clearances to walls, other inverters, or objects as follows to ensure sufficient heat dissipation.



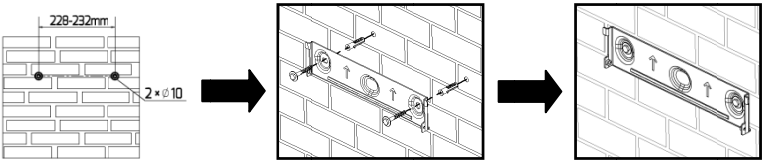
Direction	above	below	sides
Recommended clearance	300mm	500mm	200mm

3.Checking scope of delivery

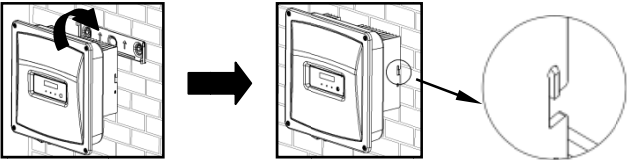
Inverter	Wall bracket	Mounting accessory kit	DC plug connector	Sealing plugs	WiFi antenna (optional)	Smart meter connector (optional)	Documentation
1X	1X	1X	2X	2X	1X	1X	1X

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. Hang the inverter onto the wall bracket slightly downwards.



3. Attach the outer fins of heat sink to both sides of the wall bracket using M5 screws, as shown in Figure A. If additional grounding or equipotential bonding is required, ground the inverter as shown in Figure B.

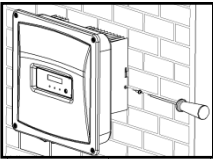


Figure A

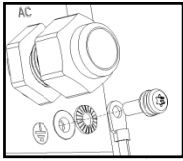


Figure B

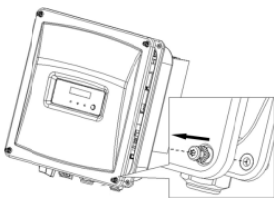
5.AC Connection



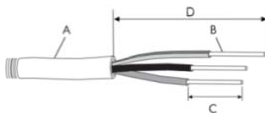
Danger to life due to high voltages in the inverter

Before performing any work on the inverter, ensure the DC switch & AC circuit breaker are switched off and cannot be reactivated.

1. Loosen the four screws of the cover using a TX25 screwdriver and remove the cover.



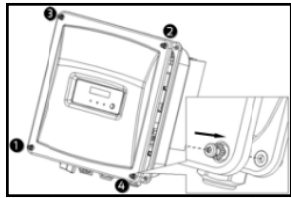
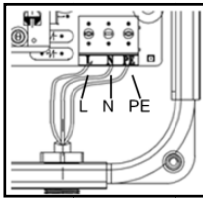
2. AC cable requirements as follows:



Object	Description	Value
A	External diameter	9 mm to 14 mm
B	Conductor cross-section	4 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. 70 mm

The PE insulated conductor must be 5mm longer than the L and N conductors

3. Insert the conductor into the suitable ferrule acc. to DIN 46228 and crimp the contact.
4. Thread the AC cable through the cable gland. Please take out the seal ring insert when the cable external-diameter over 12mm.
5. Insert the PE, N and L conductors to the screw terminal blocks and tighten them (screwdriver type: Blade 1x5.5, torque: 1.2Nm). The assignment is according to the symbol on the circuit board.
6. Tighten the swivel nut of the cable gland by using a torque of 3.5Nm.
7. Secure the cover in the sequence 1 to 4 (screwdriver type: T25,torque: 2.5Nm).



6.DC Connection

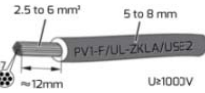


Danger to life due to high voltages of the PV array

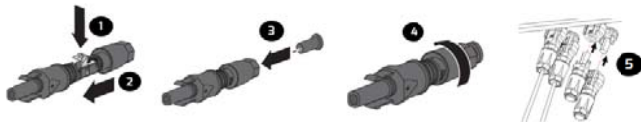
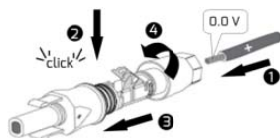
When exposed to sunlight, the PV array generates dangerous DC voltage which is present in the DC conductors and the live components of the inverter. Touching the DC conductors or the live components can lead to lethal electric shocks. If you disconnect the DC connectors from the inverter under load,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

- Do not disconnect the DC connectors under load.
- 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.
- Before connecting the PV array, ensure that the DC switch is switched off and it cannot be reactivated.

1. DC cable requirements as follow:



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 (SW15, torque: 2.0Nm). Connect the assembled DC plug connectors to the inverter.
3. For unused DC connectors, push down the clamping bracket and push the swivel nut up to the thread. Insert the sealing plug into the DC plug connector, tighten the swivel nut (torque: 2.0Nm). Finally insert the DC plug connectors with sealing plugs into the corresponding DC inputs on the inverter.



7.Communication setup

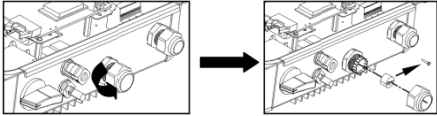
1. RS485, Ethernet and DRED connection

- Cable requirement :
- Comply with the standards for structured cabling according to EIA/TIA-568.
 - Shielding.
 - CAT-5E or higher.
 - UV-resistant for outdoor use.
 - RS485 cable maximum length 1000m ,
 - Network cable maximum length 100m .

Pinout assignment for RJ45			
Pin No.	RS485	DRED	Color
Pin1	TX_RS485A	DRM 1/5	white-green
Pin2	TX_RS485B	DRM 2/6	green
Pin3	RX_RS485A	DRM 3/7	white-orange
Pin4	GND	DRM 4/8	blue
Pin5	GND	RefGen	White-blue
Pin6	RX_RS485B	Com/DRM0	orange
Pin7	+7V	N/A	white-brown
Pin8	+7V	N/A	brown

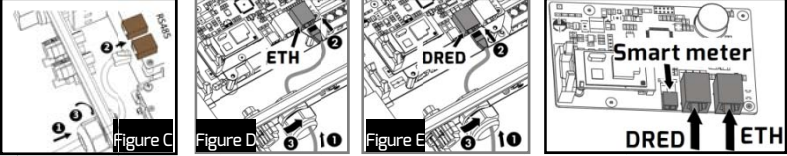


1. 1 Unscrew the swivel nut of the M25 cable gland,take out the sealing insert and remove one filler-plug.



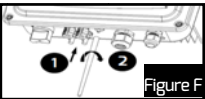
1.2 Route the cable into the inverter through the M25 cable gland and connect it.

- For RS485 communication, the RJ45 ports is located on the upper board (Figure C),
For Ethernet communication (optional), the RJ45 port is located on the upper board (Figure D).
For DRED connection (for AU only), the RJ45 port is located on the upper board (Figure E).




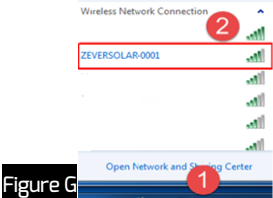
1.3 Ethernet connection diagram

- Please make sure that the router's DHCP function is activated.
- 1.4 Tighten the swivel nut slightly and secure the cover (torque: 2.5 Nm) using a T25 screwdriver.
2. WiFi connection(optional)
- 2.1 Take off the sealing cap and tighten the antenna to the WiFi connection port (Figure F).



2.2 WiFi Connection diagram

- 2.2 Please make sure that the inverter is powered-on before executing following steps.
- Open your mobile device or laptop's WLAN page. The new access point called ZEVEVSOLAR -XXXX is displayed. Note: "XXXX" stands for the last four digits in the Registry ID (Figure G).
- 2.3 Connect to the access point using your mobile device or laptop, the password is 'zeversolar'.
- 2.4 Start the web browser and type in "http://160.190.0.1". The internal website will open.
- 2.5 Select a router in the [Wireless] area. The Password/Security Key dialog box pops up.
- Enter the password of the router (Figure H). If the WiFi device is connected to the router successfully, the status indicator on the Wireless page will display the  icon (Figure I) .



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- 2.6 Please change to a secure WiFi password to ensure highest security and prevent unauthorized access, refer to manual for the process of password change (you can download the manual from ZeverSolar home page www.zeversolar.com).



- 2.7 Monitor SN and Registry Key is printed on the labels which is attached on inverter side and warranty card, they will be used for creating new plant in ZeverCloud, please visit the website (www.zevercloud.com).



3 Smart meter connection (optional)

3.1 Cable requirements:

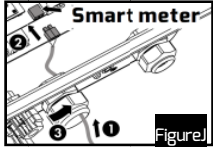
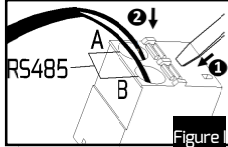


Object	Description	Value
A	External diameter	5 mm to 8 mm
B	Conductor cross-section	0.14 mm² to 1.5 mm²
C	Stripping length of the insulated conductors	approx. 9 mm
D	Stripping length of the outer sheath of the cable	approx. 30 mm

3.2 Route the cable into inverter through the M25 cable gland.

3.3 Connect the "A" and "B" conductors to the supplied smart meter connector (Figure I).

(screwdriver type: Blade 0.4 x 2.5).



3.4 Plug the assembled smart meter connector into the pin connector (Figure J).

3.5 Push the seal insert back into the cable gland, tighten the swivel nut.

3.6 Place the cover on the housing, then tighten all 4 screws with a Torx screwdriver (TX25, 2.5Nm) .

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 voltage has 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 600V.
- Make sure that the resistance between PV arrays and ground is greater than 1Mohm.
- Make sure that the AC circuit breaker must be correctly rated and mounted.
- Check that the grid voltage at the connection point of the inverter is within the permitted range.
- Make sure that cables are routed in safe place or protected against mechanical damage.
- Make sure that unused DC inputs on the inverter have inserted by DC plug connectors with sealing plugs.
- Make sure that the communication and AC cable glands have been correctly mounted and tightened.
- Make sure that the cover has been correctly mounted.

Commissioning

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.

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9. Technical Data

	Zevelution 3680	Zevelution 4000	Zevelution 5000
DC Input			
DC convertible power(@cosφ=1)	3900W	4650W	5300W
Max. DC input voltage	600V		
MPP voltage range	100-520V		
Min. DC start voltage	80V		
Max. DC input current	11A/11A		
Number of independent MPP inputs	2		
Strings per MPP input	1		
AC Output			
Rated AC output active power	3680W	4000W	5000W ³⁾
Max. AC output apparent power	3680VA	4400VA	5000VA ³⁾
Rated power frequency	50/60Hz		
Rated grid voltage	220/230V		
Max. AC output current	16A	20A	23A ⁴⁾
Line circuit breaker	B25	B32	
Adjustable displacement power factor	0.8 _{Ind} ...1... 0.8 _{cap}		
Harmonic distortion (THD) at rated output	< 3%		
General data			
PV ISO / Grid monitoring	● / ●		
GFCI function	●		
Communication interfaces: RS485 / RS485 ¹⁾ & Ethernet & WIFI & a.RJ45 ²⁾ (DRED)	● / ○		
Earth Fault Alarm	cloud based, audible and visible (AU)		
Dimensions (W x H x D)	341x 395 x172 mm		
Weight	11kg		
Noise emission	< 25 dB(A)@1m		
DC connection	SUNCLIX DC connector		
AC connection	Screw terminal block		
Operating temperature range	-25 °C ... +60 °C		
Relative humidity (non-condensing)	0% ... 100%		
Max. operating altitude	4000m(>3000m derating)		
Degree of protection (according to IEC 60529)	IP65		

- standard ○ optional 1) for 0-export with smart meter 2) only functional in AU & NZL
3) 4600 W,4600 VA for VDE-AR-N 4105 4) 21.7A for AS/NZS 4777.2:2015

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10.Contact

If you have technical problems with our products, please contact ZeverSolar 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

Zeversolar Factory Warranty

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

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

Australia
Phone: +61 13 00 10 18 83
E-Mail: service.apac@zeversolar.com

Great China
Phone: 400 801 9996
E-Mail: service.china@zeversolar.com

European Region
Phone: +49 221 48 48 52 70
E-Mail: service.eu@zeversolar.net

Rest of the world
E-Mail: service.row@zeversolar.com

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

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