Quick Installation Guide

Eversine TLC4000/5000/6000/8000/10000

532-08110-02

EN

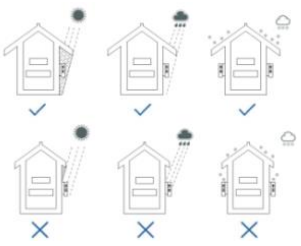
www.zeversolar.com

1.Safety

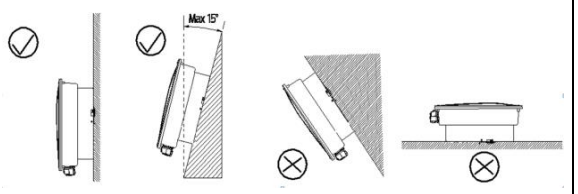
1. Eversine is a transformerless photovoltaic (PV) inverter with two MPP trackers which converts the direct current from PV array into grid-compliant alternating current, and feeds it into the utility grid.
2. Eversine must only be operated by qualified persons with the appropriate skills who have already read all documentation relating to its installation, commissioning, operation and maintenance.
3. Eversine is suitable for indoor and outdoor use.
4. Eversine 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 arrays to the inverter.
5. PV modules with a high capacity to ground must only be used if their coupling capacity does not exceed 1.0μF.
6. When exposed to sunlight, the PV array generates dangerous DC voltage, 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. Eversine complies with the Low Voltage Directive 2014/35/EU and the EMC Directive2014/30/EU. Eversine also complies with the requirements for safety and EMC in Australia and New Zealand markets. Eversine 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
	Danger	5 mins	Time need to discharge stored energy
	Danger to life due to electric shock		WEEE designation
	Risk of burns due to 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 ⩽40°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.
- 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.
- Mount the inverter vertically or tilted backward by max. 15°.
- The electrical connection area must point downwards.
- Do not put any objects on the inverter.
- Do not cover the inverter.
- Observe the recommended clearances to walls, other inverters, or objects as follows to ensure sufficient heat dissipation.



Object	above	below	sides
Recommended clearance	300mm	500mm	250mm

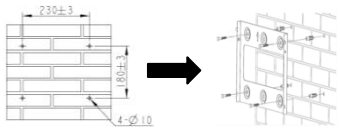
3.Checking scope of delivery

Inverter	Wall bracket	Mounting accessory kit	DC plug connector	Sealing plug	AC connection plug	RJ45 plug	Smart meter connection Plug (optional)	WiFi antenna (optional)	Documentation
1×	1×	1×	2(1)/3×	2×	1×	1(2)/2×	1×	1×	1×

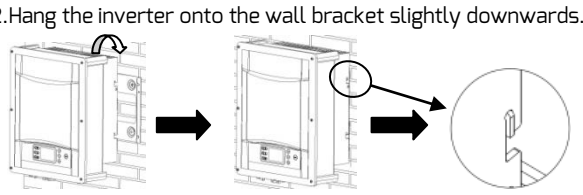
(1).2 pairs for Eversine TLC4000～TLC6000. (2).1 pcs for the inverter integrated with Ethernet module.

4.Mounting

1. Use a Φ10mm bit to drill 4 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(T25 screwdriver, torque: 2.5Nm), as shown in Figure A. If additional grounding or equipotential bonding is required, ground the inverter as shown in Figure B.

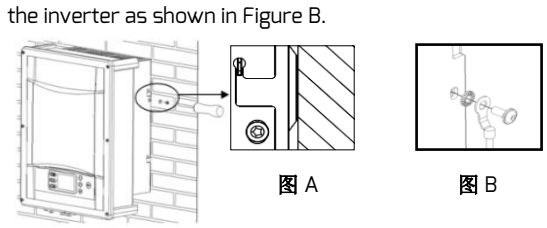


图 A

图 B

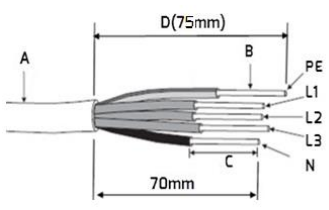
5.AC Connection

⚠ DANGER

Danger to life due to high voltages in the inverter

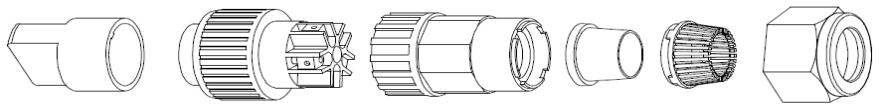
Before performing the electrical connection, ensure the DC switch & AC circuit breaker are switched off and cannot be reactivated.

1. AC cable requirements as follows:



Object	Description	Value
A	External diameter	12…21 mm
B	Copper conductor cross-section	2.5…6 mm²
C	Stripping length of the insulated conductors	approx. 9 mm
D	Stripping length of the outer sheath of the AC cable	approx. 75 mm
The PE insulated conductor must be 5 mm longer than the L and N conductors.		

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



Plastic fixture Socket element Adapter Seal ring Fastening case Swivel nut

3.Guide the swivel nut, the fastening case with sealing ring and the adapter over the AC cable.

4.Insert the crimped conductors PE, N, L1, L2, and L3 into the corresponding terminals and tighten the screw with torque 2.0Nm using an Allen key (AF 2.5). Assignment is according to the label on the socket element.

5.Assemble the socket element, adapter and swivel nut together.
Match the plastic fixture with the socket element and grip them, then screw the adapter and swivel nut.

6.Insert the AC connection plug into the receptacle on the inverter, then screw the socket element until it snaps into place.

6.DC Connection

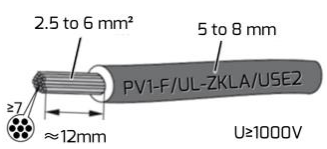
⚠ DANGER

Danger to life due to high voltages of the PV array

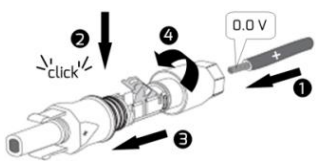
When exposed to sunlight, the PV array generates dangerous DC voltage which is present in the DC conductors and the live components of the inverter. Touching the DC conductors or the live components can lead to lethal electric shocks. If you disconnect the DC connectors from the inverter under load,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

·Do not 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.
·Prior to performing any work on the inverter, disconnect it from all voltage sources.

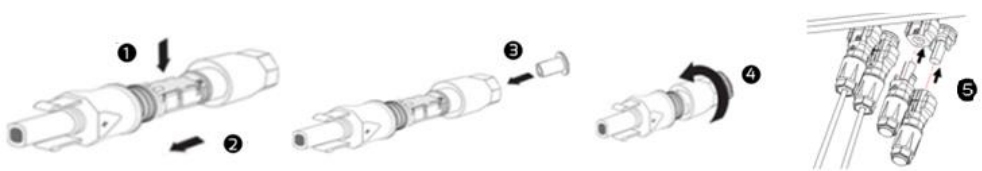
1. DC cable requirements as follows:



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(SW15, torque: 2.0Nm).
Connect the assembled DC plug connectors to the inverter.

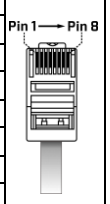


3. For unused DC plug connectors, push down the clamping bracket and push the swivel nut up to the thread. Insert the sealing plug into the DC plug connector. Tighten the DC plug connector (SW15, torque: 2.0Nm). Finally insert the DC plug connectors with sealing plugs into the corresponding DC inputs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

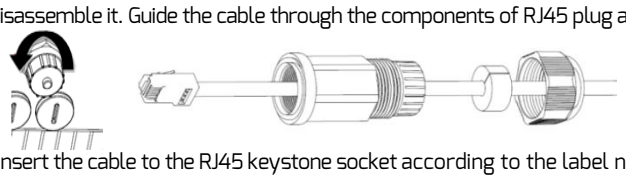


7.Communication setup

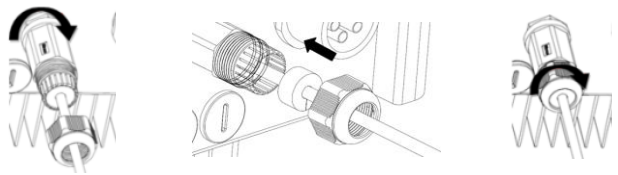
1. RS485, Ethernet and DRED connection
Cable requirement :
- Shielding wire.
- CAT-5E or higher.
- UV-resistant for outdoor use.
- RS485 cable maximum length 1000m, Network cable maximum length 100m.

Pinout assignment for RJ45				
Pin No.	RS485	DRED	Color	
Pin1	TX_RS485A	DRM1/5	white-green	
Pin2	TX_RS485B	DRM2/6	green	
Pin3	RX_RS485A	DRM3/7	white-orange	
Pin4	GND	DRM4/8	blue	
Pin5	GND	RefGen	White-blue	
Pin6	RX_RS485B	Com/DRM0	orange	
Pin7	+7V	N/A	white-brown	
Pin8	+7V	N/A	brown	

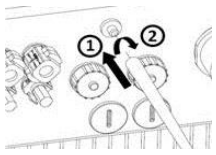
1.1 Unscrew the cap nut from the RJ45 keystone socket on the inverter. Take out the RJ45 plug provided, and disassemble it. Guide the cable through the components of RJ45 plug as follows.



1.2 Insert the cable to the RJ45 keystone socket according to the label next the connection port, then screw the threaded sleeve to the RJ45 socket tight by hand. Push the seal insert to the threaded sleeves. Tighten the swivel nut slightly.



2. WiFi connection（optional）.



2.1 Take off the sealing cap and tighten the antenna to the WiFi connection port.
2.2 Please make sure that the inverter is power-on before executing following steps.
Open your mobile device or laptop's WLAN page. The new access point called ZEVERSOLAR -XXXX is displayed. Note: "XXXX" stands for the last four digits in the Registry ID (Figure C).
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 will pop up.
Enter the password of the router (Figure D). If the WiFi device is connected to the router successfully, the status indicator on the wireless page will display the icon (Figure E).

Figure C

Figure D

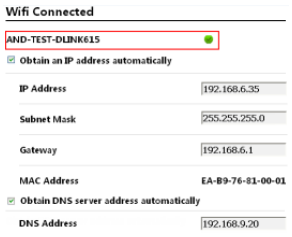


Figure E

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 (Figure F, you can download the manual from Zeversolar home page www.zeversolar.com).

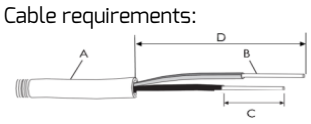
2.7 Monitor SN and Registry Key is printed on the labels (Figure G) which is attached on inverter side and warranty card, they will be used for creating new plant in ZeverCloud (www.zevercloud.com).

Figure F

Figure G

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 mm^2 to 1.5 mm^2
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 Unscrew the cap nut from the smart meter connection socket, guide the cable through the components of the smart meter connection plug.

3.3 Insert conductors into the corresponding screw terminals and tighten, tighten clamp ring and swivel nut. Insert the connection plug into the socket and screw tight

8.Commissioning

Check
-Make sure that the inverter and wall bracket have been correctly mounted.
-Check that the inverter's exposed metal surface has a ground connection.
- Make sure that the DC connectors have the correct polarity.
-Make sure that the open-circuit voltage of the PV array does not exceed 1000VDC.
-Make sure that the resistance between PV arrays and ground is greater than 1Mohm.
-Make sure that all DC connectors are tightened correctly and securely in place.
-Make sure that unused DC inputs have been inserted by DC plug connectors with sealing plugs.
-Make sure the WiFi antenna has been tightened.
-Make sure that the cable communication connectors have been correctly mounted and tightened.
-Make sure that the ammeter connector has been correctly mounted and tightened.
-Make sure the cap nuts on the unused sockets have been correctly tightened.
-Check that the grid voltage at the point of connection of the inverter is within the permitted range.
-Make sure that the AC circuit breaker must be correctly rated and mounted.
-Make sure that the AC connector has been correctly mounted and tightened.
-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 power applied and the grid conditions are met, the inverter will start to operate automatically.

9.Technical Data

	TLC4000	TLC5000	TLC6000	TLC8000	TLC10000
DC Input					
DC convertible power (@cosφ=1)	4650	5800	6300	9250	10500
Max. DC input voltage	1000V				
MPP voltage range	200-900V				
Max. DC input current, per MPPT	11A/11A			15A/11A	
Number of independent MPP inputs	2				
Strings per MPP input	1/1			2/1	
AC Output					
Rated AC output active power	4000W	5000W	6000W	8000W	10000W
Max. AC output apparent power	4400VA	5500VA	6000VA	8800VA	10000VA
Rated grid voltage	3/N/PE, 220/380V, 230/400V, 240/415V				
AC power frequency	50/60Hz				
Max. AC output current	6.8A	8.5A	9.2A	13.3A	15.1A
Recommended AC circuit breaker rating	300V, 16A			300V, 20A	
Adjustable displacement power factor	0.85_{ind} ...1...0.85_{cap}				
Harmonic distortion (THD) at rated output	< 3%				
Communication Interface					
RS485	●				
RS485[1] & Ethernet & WIFI & a.RJ45[2] (DRED)	○				
General Data					
Dimensions (W x H x D)	405x 498x222mm			405x 498x255mm	
Weight	21kg			24kg	
Noise emission (typical)	< 40dB(A)@1m			< 45dB(A)@1m	
DC connection / AC connection	SUNCLIX DC connector / Plug-in connector				
Earth Fault Alarm	cloud based, audible and visible (AU)				
Cooling concept	Convection				
Operating temperature range	-25℃...+60℃				
Relative humidity (non-condensing)	0% ... 100%				
Max. operating altitude	2000m				
Degree of protection (acc. to IEC 60529)	IP65				
Climatic category (acc. to IEC 60721-3-4)	4K4H				
Topology	Transformerless				
Self-consumption (night)	< 0.6W				
Standby power	< 12W				

● standard ○ optional
1) 2-pin RS485 for connection to approved smart meters in zero export installations (replacing standard RS485 on RJ 45 connector)
2) Analog RJ45 interface to DRED in Australia & New Zealand

10.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 & New Zealand
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.