Quick Installation Guide

Eversol TLC 15K
Eversol TLC 17K
Eversol TLC 20K

532-08117-01

EN

www.zeversolar.com

Manual

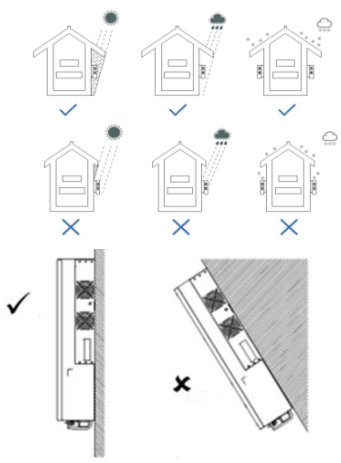
1.Safety

1. Eversol is a transformerless photovoltaic (PV) inverter with two MPP trackers which converts the direct current of the PV array into grid-compliant three-phase current and feeds it into the utility grid.
2. Eversol 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. Eversol is suitable for indoor and outdoor use.
4. Eversol must only be operated with PV array (PV modules and cabling) 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 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.

Icon	Explanation	Icon	Explanation
	Danger	5 mins	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 ⩽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.
- 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, objects to ensure sufficient heat dissipation.



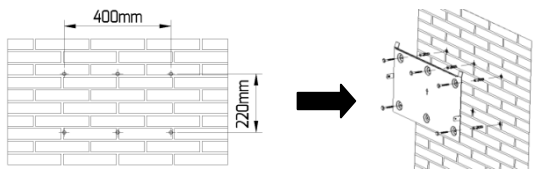
Direction	above	below	sides
Recommended clearance（mm）	300	500	800

3.Checking scope of delivery

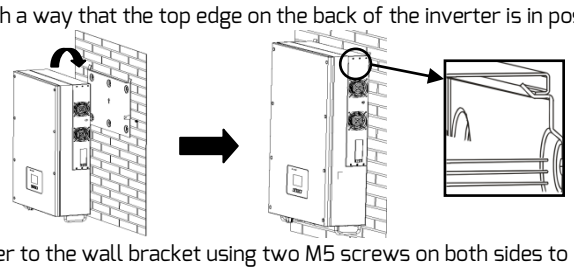
Inverter	Wall bracket	Mounting Accessory kit	DC plug connector	Sealing plug	AC connector	ferrule (6 mm²)	RJ45 plug	Document
1	1	1	4	4	1	5	2	1

4.Mounting

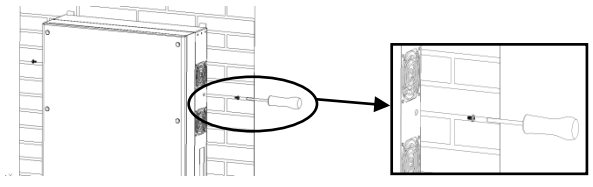
1. Use a Ø10mm bit to drill 5 holes at a depth of about 70mm, insert the wall anchors and attach the wall bracket to the wall.



2. Hold the handles on both sides and bottom of the inverter and slowly raise, hang the inverter onto the wall bracket in such a way that the top edge on the back of the inverter is in position as follows.



3. Secure the inverter to the wall bracket using two M5 screws on both sides to prevent the inverter from accidently slipping off. Screwdriver type: T25, Torque: 2.5Nm.

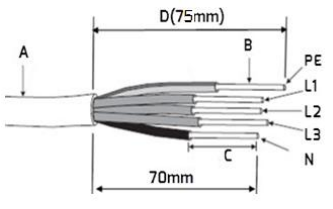


5.AC Connection

⚠ DANGER

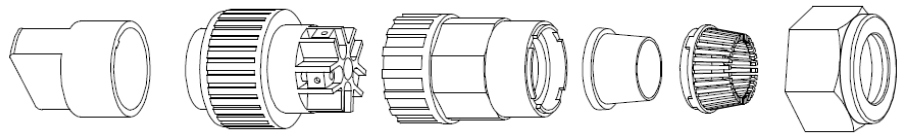
Danger to life due to high voltages in the inverter
Before performing the electrical connection, ensure the DC switch & AC circuit breaker are switched off and cannot be reactivated.

1. AC cable requirements as follows:



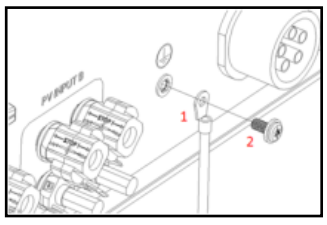
Object	Description	Value
A	External diameter	18…21mm
B	Copper conductor cross-section	6…10 mm²
C	Stripping length of the insulated conductors	approx. 12 mm
D	Stripping length of the outer sheath of the AC cable	approx. 75 mm
The PE conductor must be 5 mm longer than the L and N conductors.		

2. Insert the conductor into the suitable ferrule acc. to DIN 46228-4 and crimp the contact.
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 3.0). Assignment is acc. to the label on the socket element.



Plastic fixture Socket element Adapter Seal ring Fastening case Swivel nut

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 with a torque of 4Nm.
6. Plug the AC connector into the socket for the AC connection and screw tight. When doing so, align the AC connector so that the key on the inverter AC socket is inserted into the keyway on the AC connector bush insert.
7. Please connect an additional grounding as shown in figure, (Screwdriver type: T25, Torque: 2.5Nm.)

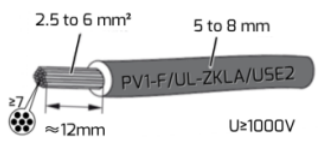


6.DC Connection

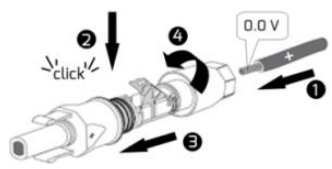
⚠ DANGER

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.

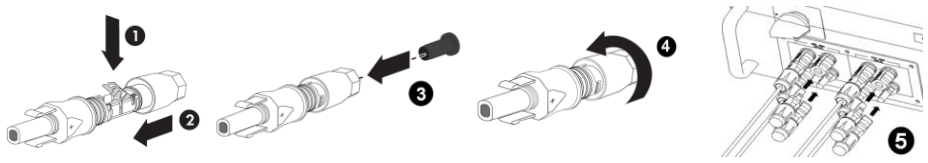
1. DC cable requirements :



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). 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 Nm). Finally insert the DC plug connectors with sealing plugs into the corresponding DC inputs on the inverter.

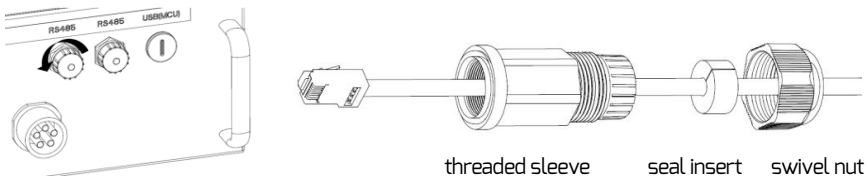


7.Communication setup

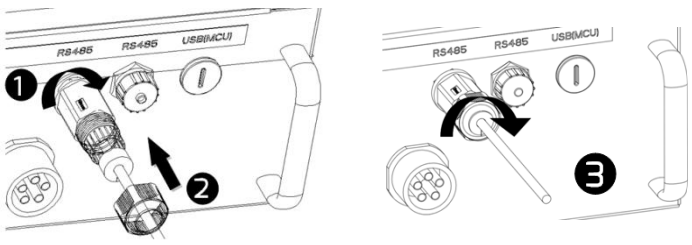
1. RS485 connection
Cable requirement :
- Shielding cable.
- CAT-5E or higher.
- UV-resistant for outdoor use.
- Cable maximum length 1000m,

Pinout assignment for RJ45		
Pin No.	Pin definition	Pin 1 → Pin 8
1	TX_RS485A	
2	TX_RS485B	
3	RX_RS485A	
4	GND	
5	GND	
6	RX_RS485B	
7	+7V	
8	+7V	

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.



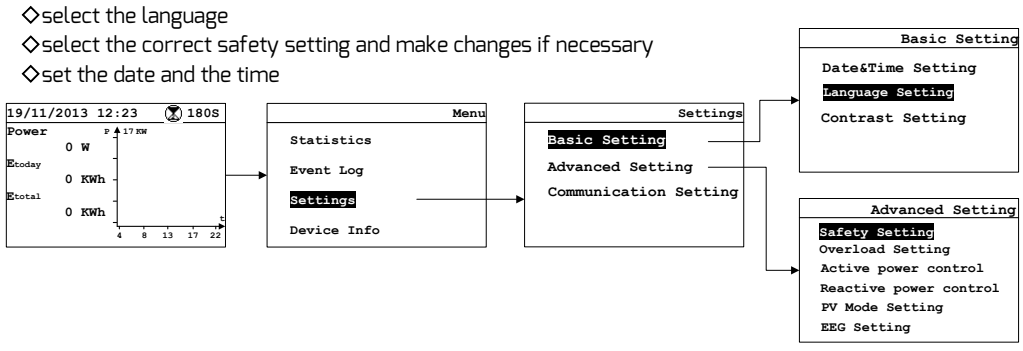
1.2 Insert the cable to the RJ45 keystone socket then screw the threaded sleeve to the RJ45 socket tight by hand. Push the seal insert to the threaded sleeve. Tighten the swivel nut slightly.



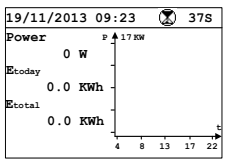
8.Commissioning

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.
-Check whether 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 on the inverter have been inserted by DC plug connectors with sealing plugs.
-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 wired.
-Make sure that the AC cable has been correctly rated and wired.
-Make sure that the AC connector is tightened correctly and securely in place.
-Make sure that the cable communication connectors have been correctly wired and tightened.
-Make sure that cables are routed in safe place or protected against mechanical damage.

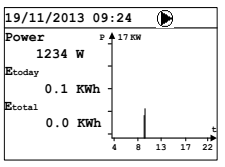
Startup
After finishing the above checks, switch on DC-switch, the display will show initialization and the current safety standard, then jump to the home page. As the inverter is not yet connected to the grid, "Error code: 35" will appear on the display.
Configure the basic settings :
◇select the language
◇select the correct safety setting and make changes if necessary
◇set the date and time



Switch on the AC circuit breaker, the inverter will switch to "Checking" mode automatically if the initial string voltage exceeds 300V.



After checking, the inverter will switch to "Normal" mode and feed power into the grid.
If there is a fault, the inverter will switch to "Fault" mode, please refer to Section 11 "Troubleshooting" of the user manual.



Once there is sufficient DC voltage applied and the grid connection conditions are met, the inverter will start operating automatically.

9.Technical Data

	TLC 15 K	TLC 17 K	TLC 20 K
DC Input			
DC convertible power (@cosφ=1)	17250 W	19520 W	21000 W
Max. DC input voltage	1000 V		
MPP voltage range	270-950 V		
Max. DC input current, MPPT input A/B	22 A / 22 A		
Number of independent MPP inputs	2		
Strings per MPP input	2 / 2		
AC Output			
Rated AC output active power	15 kW	17 kW	20 kW
Max. AC output apparent power	15 kVA[1)]	17 kVA[1)]	20 kVA
Rated grid voltage	3/N/PE, 220/380 V, 230/400 V, 240/415 V		
AC power frequency	50 / 60 Hz		
Max. AC output current	24 A	25.8 A	30 A
Recommended AC circuit breaker rating	300 V, 32 A		300 V, 40 A
Adjustable displacement power factor	$0.85_{Ind.}...0.85_{cap}$		
Harmonic distortion (THD) at $P_{ac,r}$	< 3%		
General Data			
Dimensions (W x H x D)	758×500×175 mm		
Weight	43 kg		
Noise emission (typical)	< 60dB(A)@1m		
DC connection / AC connection	SUNCLIX DC connector / Plug-in connector		
Earth fault alarm	cloud based, audible and visible (AU)		
Cooling concept	Fan cooling		
Operating temperature range	-25℃...+60℃		
Relative humidity (non-condensing)	0% ... 100%		
Max. operating altitude	2000 m		
Degree of protection (acc. to IEC 60529)	IP55(Fan) / IP65 (Electronics)		
Communication interfaces	RS485		
Climatic category (acc. to IEC 60721-3-4)	4K4H		
Topology	Transformerless		
Self-consumption (night)	< 1 W		
Standby power	< 12 W		

1) Maximum 10% AC overload can be activated by settings on the display, please make sure that it is compliant to local regulations and DNO's requirements before enabling.

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).

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@zeversolar.com	Europe Phone: +49 221 48 48 52 70 E-Mail: service.eu@zeversolar.net
China(incl. Hong Kong, Macau) Phone: 400 801 9996 E-Mail: service.china@zeversolar.com	Rest of the world E-Mail: service.row@zeversolar.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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