



ZUCCHETTI
Centro Sistemi



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This manual contains important safety instructions that must be followed during installation and maintenance of the equipment.

This manual must be considered an integral part of the equipment, and must be available at all times to everyone who interacts with the equipment. The manual must always accompany the equipment, even when it is transferred to another user or plant.

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ZCS offers a support and technical consultancy service accessible by sending a request directly from the website <https://www.zcsazzurro.com/it/support>.

The following toll-free number is available for the Italian territory: 800 72 74 64.

Please read this manual carefully before installation, operation or maintenance.

This manual contains important safety instructions that must be followed during installation and maintenance of the system.

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This manual describes the assembly, installation, electrical connections, commissioning, maintenance and troubleshooting of the following AZZURRO inverters:

1PH 1100TL-V3 / 1PH 1600TL-V3 / 1PH 2200TL-V3 / 1PH 2700TL-V3 / 1PH 3000TL-V3 /

1PH 3300TL-V3






Keep this manual so that it is accessible at all times.

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This manual is intended for qualified technical personnel (installers, technicians, electricians, technical support personnel or anyone who is qualified and certified to operate a photovoltaic system), who are responsible for installing and starting the inverter in the photovoltaic energy system and for operators of the photovoltaic system.

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This manual provides information for safe operation and uses certain symbols to ensure the safety of personnel and materials, and for efficient use of the equipment during normal operation. It is important to understand this information to avoid accidents and damage to property. Please take note of the following symbols used in this manual.



Highlights the safety instructions to be followed during installation and use of the equipment.

Introduces the main safety symbols on the inverter.

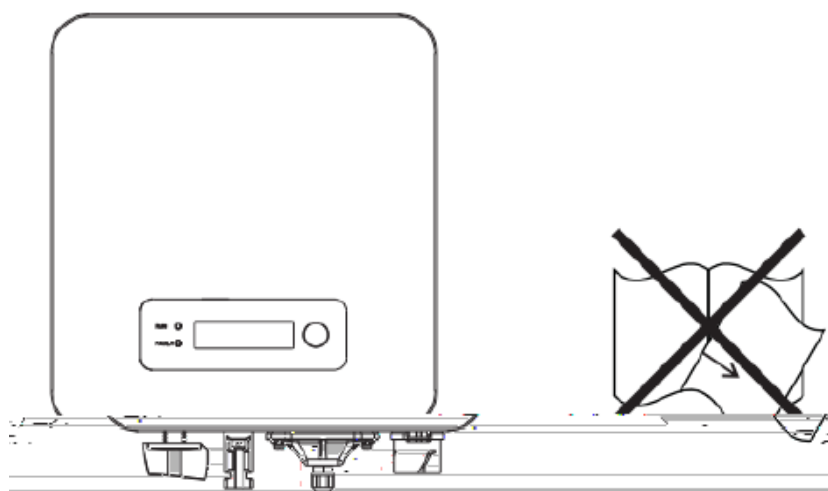
Before installing and using the equipment, make sure you read and understand the instructions in this manual and familiarise yourself with the relative safety symbols shown in this chapter.

Depending on national and local requirements, permission must be obtained from your local provider before connecting to the electrical grid, making sure that the connections are carried out by a qualified electrician.

Contact the nearest authorised service centre for any repairs or maintenance. Contact your distributor for information on the nearest authorised service centre. **DO NOT** carry out repairs yourself, as this may result in injury or damage.

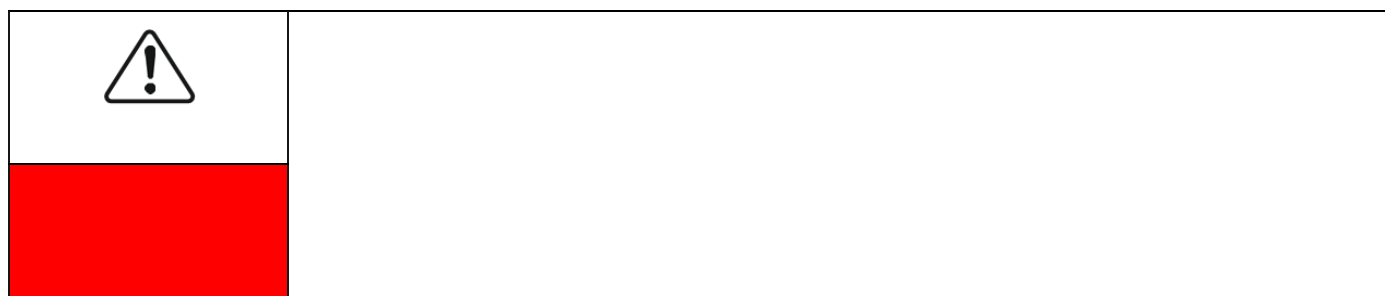
Ensure that the operator has the necessary skills and training to operate the equipment. Personnel responsible for use and maintenance of the equipment must be qualified and capable of performing the activities described, and must also have appropriate knowledge on how to correctly interpret the contents of this manual. For safety reasons, this inverter can only be installed by a qualified electrician with the necessary training and/or skills and knowledge. Zucchetti Centro Sistemi S.p.A. declines all responsibility for damage to property or personal injury caused by incorrect use of the device.







Install and start the inverter according to the following instructions. Place the inverter on suitable load-bearing supports with sufficient load capacity (such as walls or photovoltaic racks) and make sure that the inverter is positioned vertically. Choose a suitable location for the installation of the electrical equipment. Make sure there is sufficient space for heat dispersion and to accommodate future maintenance. Maintain adequate ventilation and ensure that there is enough air circulation for cooling.









If you have problems with the packaging that could damage the inverter or if you find any visible damage, immediately notify the transport company. If necessary, request assistance from an installer of photovoltaic systems or from Zucchetti Centro Sistemi SpA. Transport of the equipment, especially by road, must be carried out with vehicles suitable to protect the components (in particular, electronic components) against violent knocks, humidity, vibrations, etc.




Please pay attention to the electrical regulations on accident prevention when dealing with photovoltaic inverters.












	<ul style="list-style-type: none"> • be prepared. • carefully read this manual and understand its contents.
	
	
	
	
	

	<ul style="list-style-type: none"> • Do not touch the terminal or the conductor connected to the electrical grid. • Follow all the instructions and safety requirements relating to the mains connection.
	
	
	

	<ul style="list-style-type: none"> • Before carrying out any repairs, disconnect the inverter from the mains network (AC side) and from the photovoltaic system (DC side). • After switching off the AC and DC switches, wait 5 minutes before carrying out any repairs or maintenance on the inverter!
	<ul style="list-style-type: none"> • The inverter should start working again after any faults have been fixed. For any repairs, contact your local authorised service centre; • Do not disassemble the internal components of the inverter without permission. This will void the warranty. Zucchetti Centro Sistemi S.p.A. shall not be responsible for any damage or loss caused by improper use or maintenance.

	<p>Only touch the screen or press the keys while the inverter is in operation.</p>
	
	

Some safety symbols are located on the inverter. Read and understand the contents of the symbols before installing the inverter.

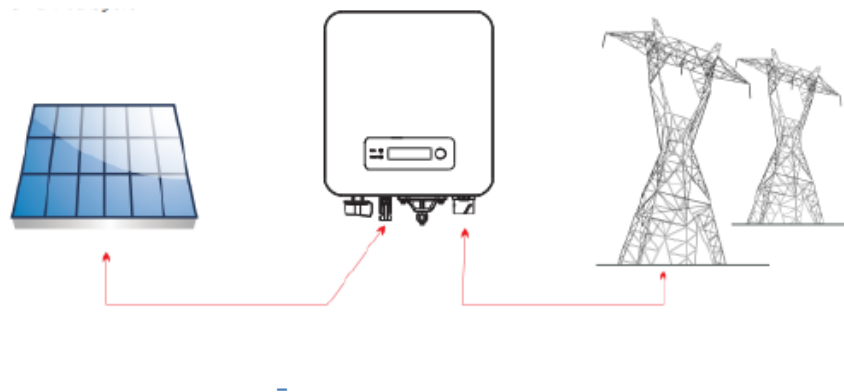
	Residual voltage may be present on the inverter! Before opening the inverter, wait 5 minutes to ensure that the capacitors are completely discharged.
	Beware of high voltage
	Beware of high temperatures
	Complies with the European Standards (CE)
	Ground connection point
	Read this manual before installing the inverter.
	Indication of the allowable temperature range
	Degree of protection of the equipment according to the IEC 70-1 standard (EN 60529 June 1997).
	Positive and negative polarities of the input voltage (DC).

The field of use and overall dimensions of the 1PH 1100TL-3300TL-V3 inverters are indicated in this section.

Describes how the 1PH 1100TL-3300TL-V3 inverters and their internal operating modules work.

Describes the efficiency curves of the inverter.

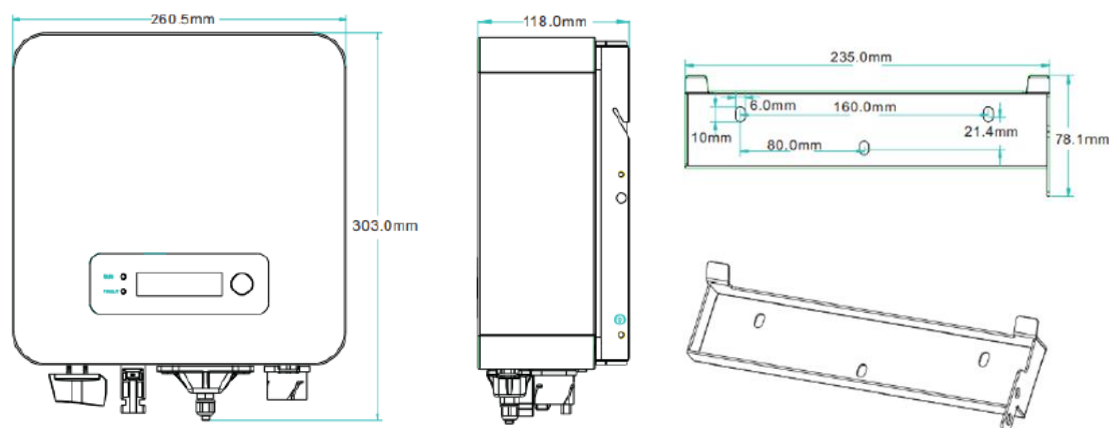
The 1PH 1100TL-3300TL-V3 inverters are grid-connected photovoltaic inverters with a single MPPT channel, capable of converting the direct current generated by the photovoltaic strings into single-phase sine wave alternating current and feeding the energy to the public electricity grid. An AC circuit breaker (see chapter 4.4) must be used as a disconnecting device and must always be easily accessible.



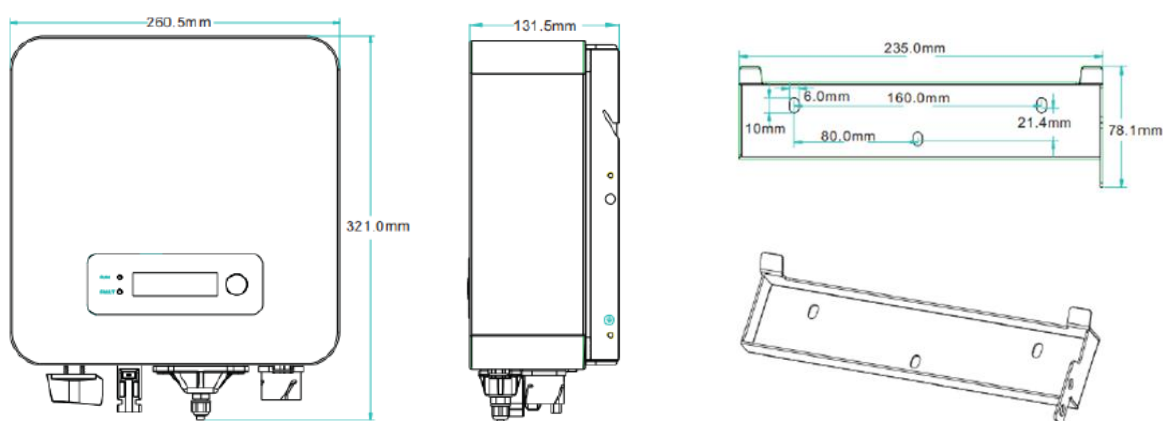
The 1PH 1100TL-3300TL-V3 inverters can only be used with photovoltaic modules that do not require one of the polarities to be grounded. The input current and voltage of the PV strings must not exceed the limits specified in the technical specifications. Only photovoltaic modules can be connected to the input of the inverter (do not connect batteries or other power supply sources).

Bddf f b e b d f g i f f f i e c f d i f c b qualified technician who is familiar with the installation conditions.

P f b e f QI 1100TL-3300TL-V3 : LxWxH = 303 mm x 260.5 mm x 118 mm



P f b e mensions 1PH 2700TL-3300TL-V3 : LxWxH = 321 mm x 260.5 mm x 131.5 mm



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Le etichette non devono essere nascoste con oggetti o corpi estranei (stracci, scatole, attrezzature, ecc.) e devono essere pulite regolarmente e mantenute sempre visibili

The DC power generated by the PV modules is filtered through the input board before entering the power board. The input board also has the function of detecting the insulation impedance and the DC input voltage/current. The power board converts the DC power into AC power. The current converted into AC is filtered through the output board and is then fed into the grid. The output board also has the function of measuring the grid voltage/current, GFCI and acts as an output isolation relay. The control board provides the auxiliary power supply, controls the operating status of the inverter and shows it on the display. The display also shows the error codes when the inverter is not functioning properly. At the same time, the control board can activate the protection relay in order to disconnect the inverter from the grid and protect the internal components.

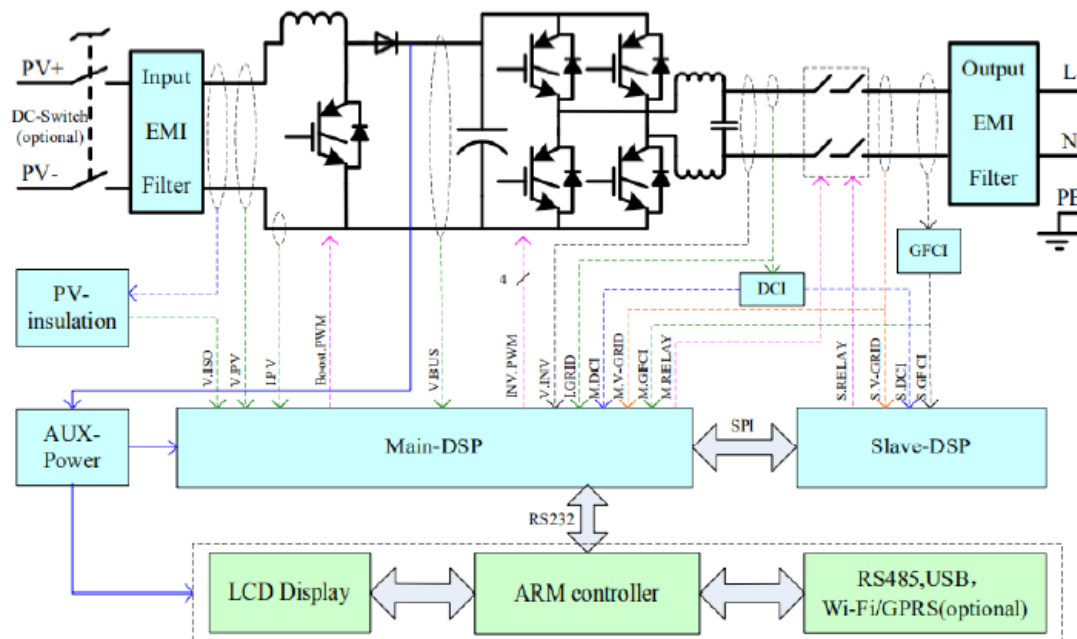
The inverter is able to produce reactive power and feed it into the grid through the setting of the Power Factor. The feed-in management can be controlled directly by the grid company through a dedicated RS485 interface.

If enabled, the inverter can limit the amount of active power fed into the grid at the desired value (expressed as a percentage).

When the grid frequency is higher than the limit set, the inverter reduces the output power in order to ensure the stability of the grid.




The inverter (or a group of inverters) can be monitored remotely via an advanced communication system based on a RS485 interface or via Wi-Fi.

A microSD card is used to update the firmware.





This chapter describes how to install the 1PH 1100TL- 3300TL-V3 inverter.

	<ul style="list-style-type: none"> • DO NOT install 1PH 1100TL-3300TL-V3 inverters near flammable materials. • DO NOT install 1PH 1100TL-3300TL-V3 inverters in an area where flammable or explosive materials are stored.
	<p>The housing and heat sink may become very hot while the inverter is running, DO NOT install the inverter in places where they may be touched inadvertently.</p>
	<ul style="list-style-type: none"> • Consider the weight of the inverter during transportation and installation. • Choose an appropriate mounting position and surface.



Packaging materials and components may be damaged during transport. Therefore, please check the materials of the outer packaging before installing the inverter. Check the surface of the box for external

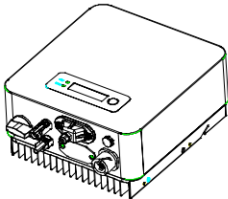
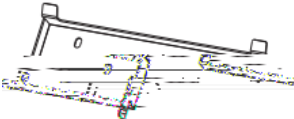


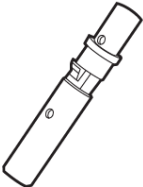
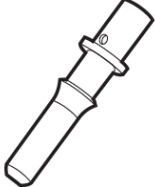
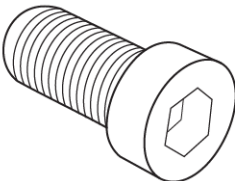
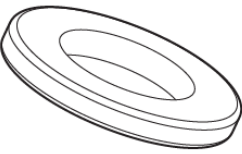
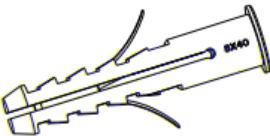
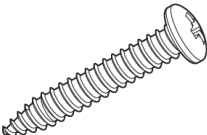


damage such as holes or tears. If any form of damage is detected, do not open the box containing the inverter and contact the supplier and the courier as soon as possible.



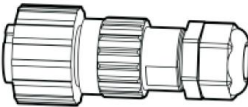
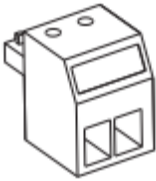
It is recommended to remove the packaged materials from the box 24 hours before installing the inverter.

After removing the inverter from its packaging, check that the product is intact and complete. If any damage is found or components are missing, contact the supplier and transport company.

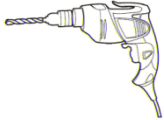

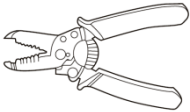
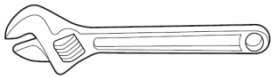
Carefully check the contents of the packaging before installation, making sure that no element inside the packaging is missing or damaged.


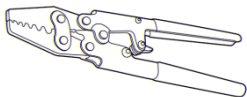


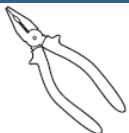
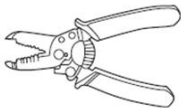
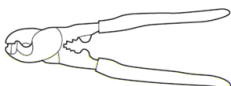
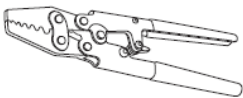
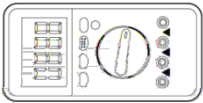

The package should contain the following components:

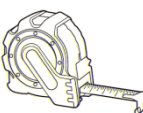
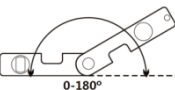
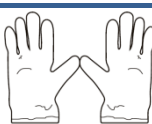


			
1 Photovoltaic inverter	1 mounting bracket	1 + input terminal	1 - input terminal
			
1 metal terminal for + DC power cables	1 metal terminal for - DC power cables	2 M5 hexagonal screws	10 M6 flat washers
			
3 expansion plugs (1 spares)	5 self-tapping screws	1 user manual	2 warranty

 1 Warranty Registration	 1 Outgoing inspection report	 1 AC output connector	 1 485 terminal
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The following tools are required for installation of the inverter and electrical connections; therefore, they must be prepared before installation.

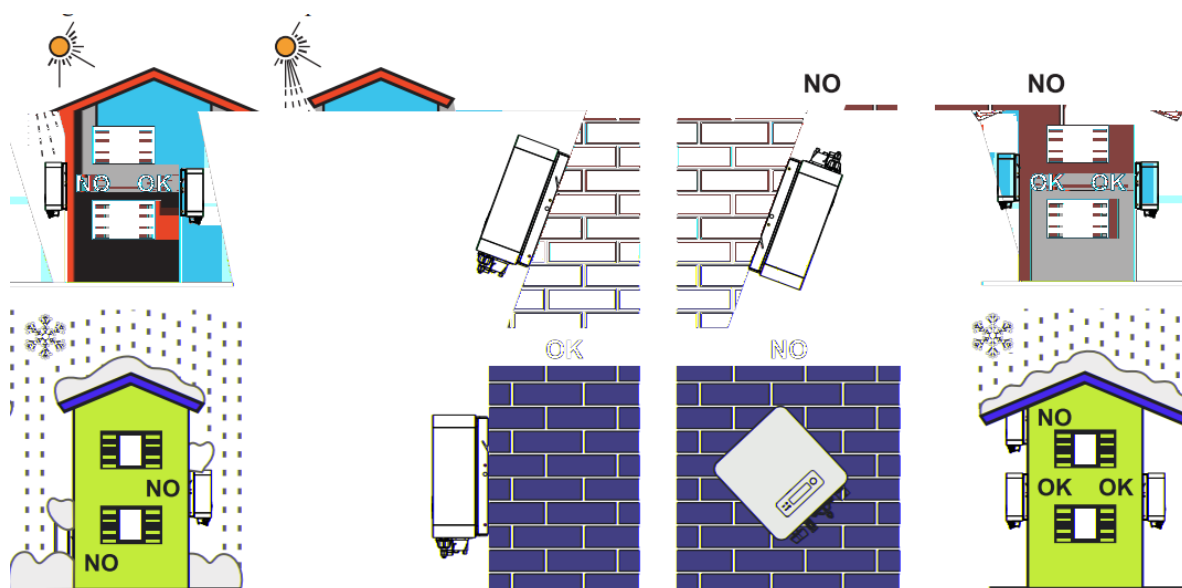
1		Drill Recommended drill bit: 6mm	To drill holes in the wall for fixing the bracket
2		Screwdriver	To screw and unscrew screws for the various connections
3		Wire stripper	To prepare the cables for wiring
4		Adjustable spanner (opening greater than 32 mm)	To tighten the bolts

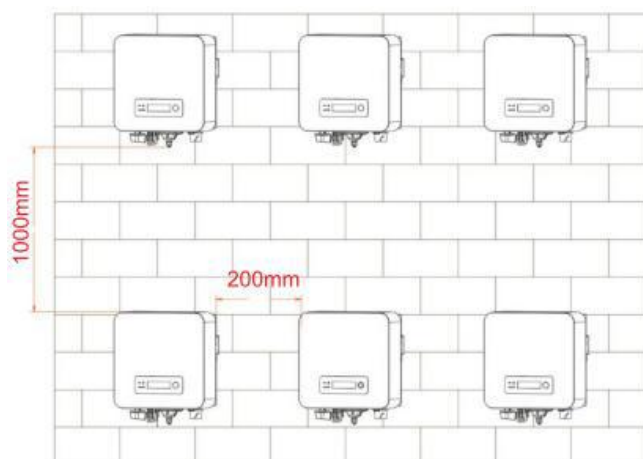
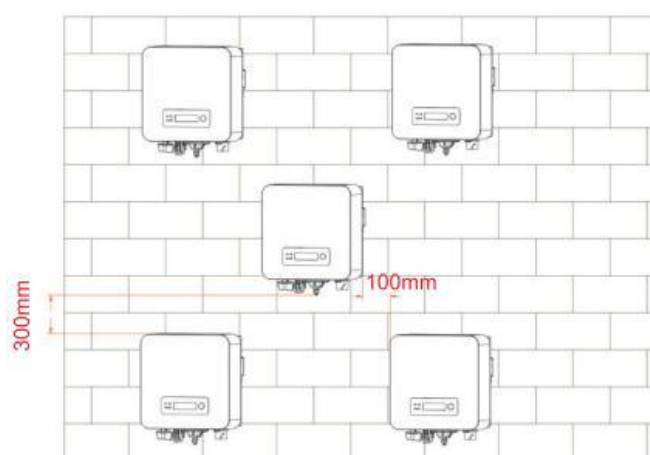
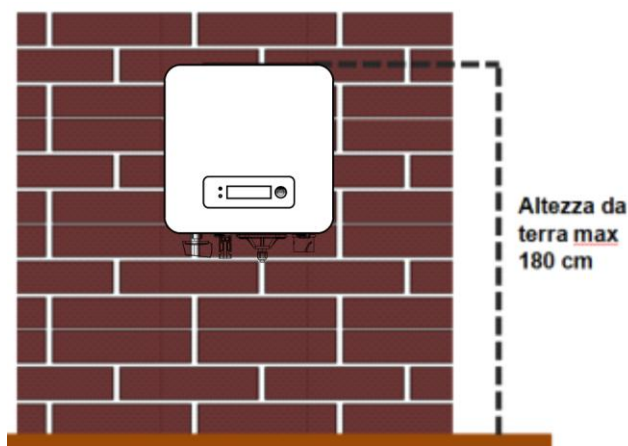
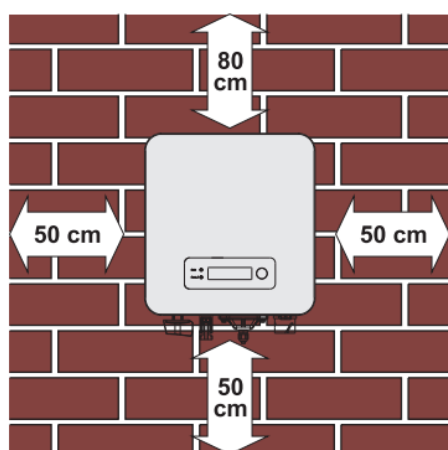
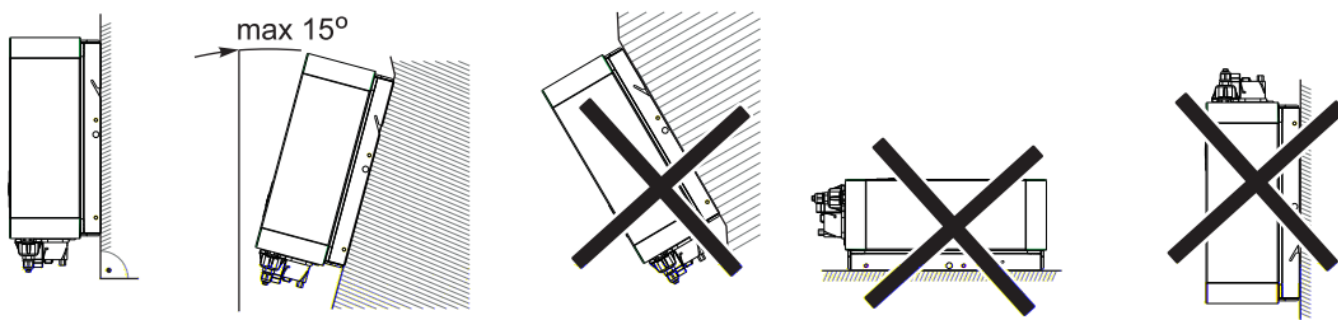
5		4 mm Allen key	To screw the inverter to the wall-mounting bracket and to open the front cover of the inverter
6		RJ45 crimping tool	To crimp the RJ45 connectors for the communication cables
7		Rubber hammer	To insert the expansion plugs into the wall holes
8		MC4 removal tool	To remove the DC connectors from the inverter
9		Diagonal pliers	To cut and tighten the cable ends
10		Wire stripper	To remove the outer sheath of the cables
11		Cable cutter	To cut the power cables
12		Crimping tool	To crimp the power cables
13		Multi-meter	To check the voltage and current values
14		Marker pen	To mark the wall for better fixing precision

15		Measuring tape	To measure distances
16		Level	To make sure the bracket is level
17		ESD gloves	Protective clothing
18		Safety goggles	Protective clothing
19		Protection mask	Protective clothing

Choose an appropriate installation location for the inverter.

Follow the requirements below to determine the installation position.



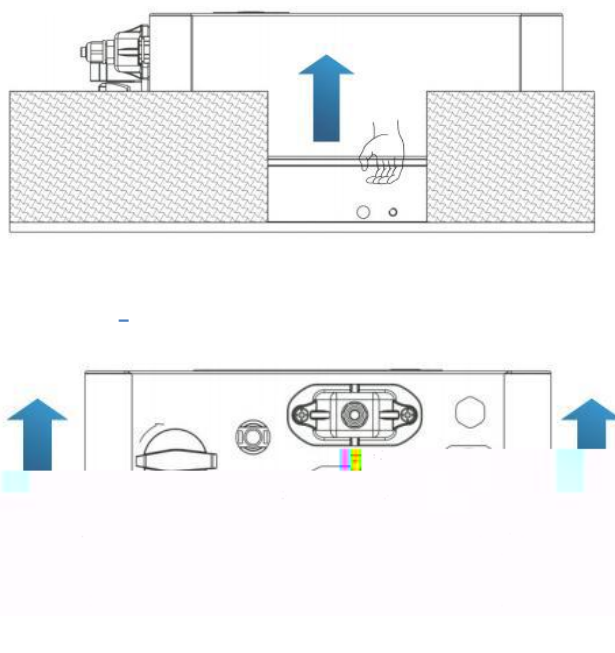


For safety reasons, ZCS Spa and/or its partners may not carry out any technical repairs or maintenance work, or move the inverter from and to the ground if it is installed at a height of more than 180 cm from the ground.

Inverters installed at higher heights must be moved to the ground before they can be repaired or serviced.

This section describes how to move the inverter correctly

Open the packaging and remove the protective cover in polystyrene, insert your hands into the slots on both sides of the inverter and take a hold of it, as shown in figures 11 and 12.



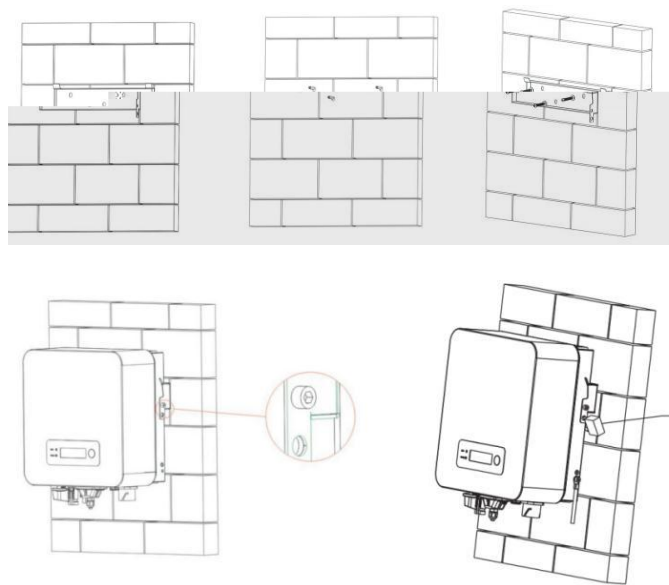
Lift the inverter from its packing box and move it to the installation position, then remove the polystyrene protections.

	<ul style="list-style-type: none"> • • •
	

- 1) Correctly position the mounting bracket on the wall using a level to ensure that it is straight; mark the 3




holes using a suitable marker pen. Keeping the hammer drill perpendicular to the wall and avoiding any sudden movements when drilling, drill the 3 holes at the points marked on the wall using a 6 mm drill bit. In case of errors during drilling, it is necessary to reposition the holes.

- 2) Insert the plugs horizontally into the holes made, paying attention to the force and depth with which they are inserted (make sure the plug completely enters the hole).
- 3) Align the mounting bracket with the position of the holes and fix it to the wall using the screws and flat washers supplied, tightening them properly.
- 4) Place the inverter on the mounting bracket
- 5) Secure the inverter to the mounting bracket with the M5 bolt to ensure stability.
- 6) PQU POBM Effeh if d f f f f if f f db cf d fe if h
 bracket with a safety lock (not supplied with the kit).



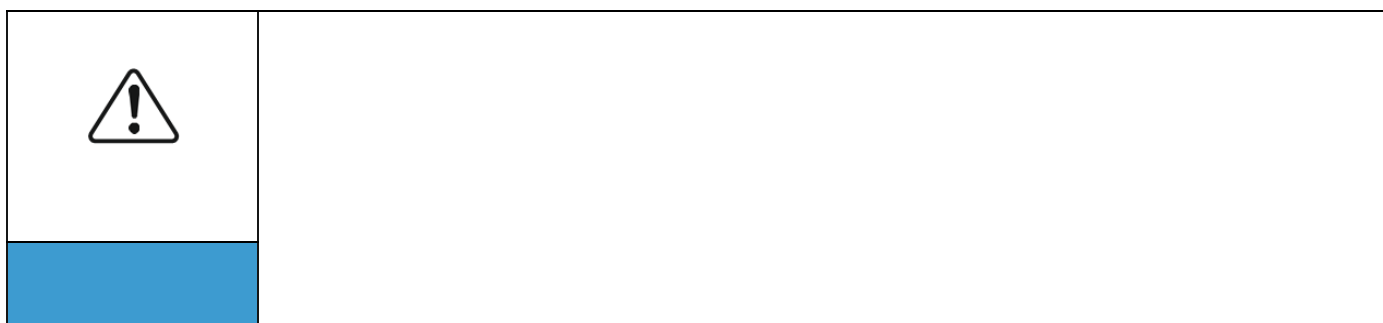
This chapter describes the electrical connections of the 1PH 1100TL-3300TL-V3 inverter. Carefully read this section before connecting the cables.

Before making any electrical connections, ensure that the DC circuit breaker is switched off. Please note that the capacitors in the inverter may remain electrically charged after the DC circuit breaker has been switched off. Therefore, it is necessary to wait at least 5 minutes to allow the capacitor to discharge completely.

	<p>The inverter must be installed and serviced by professional technicians or electricians.</p>
	<p>The PV modules generate electricity when exposed to sunlight, which can pose a risk of electric shock. Before connecting the DC input power cord, be sure to disconnect the strings via the appropriate circuit breakers.</p>
	<p>The maximum open-circuit voltage of the photovoltaic string must be less than 500 V for each 1PH 1100TL-2200TL-V3 inverter and less than 550V for each 1PH 2700TL-3300TL-V3 inverter.</p> <p>The 1PH 2700TL-3300TL-V3 series has only one independent input channel (MPPT); all the photovoltaic modules connected to it must be of the same model and brand. They must be connected in series and have the same orientation (solar azimuth and inclination angle).</p>



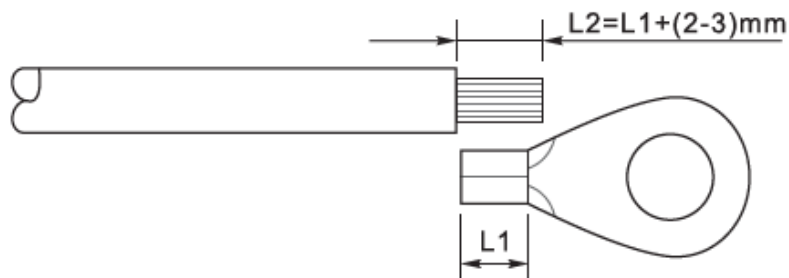
Connect the 1PH 1100TL-3300TL-V3 inverter to the ground electrode using ground protection cables (PGND).



Prepare the PGND cables to be connected (it is recommended to use outdoor power cables with a cross-section of 4 mm² suitable for grounding). It is recommended to use yellow-green cables for better identification.

Remove an adequate length of the external insulation layer using a wire stripper, as shown in Figure 15.

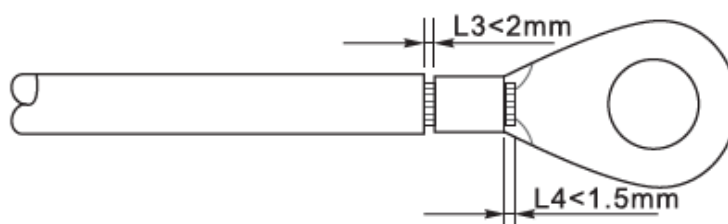
L2 is approximately 2- 3 mm longer than L1



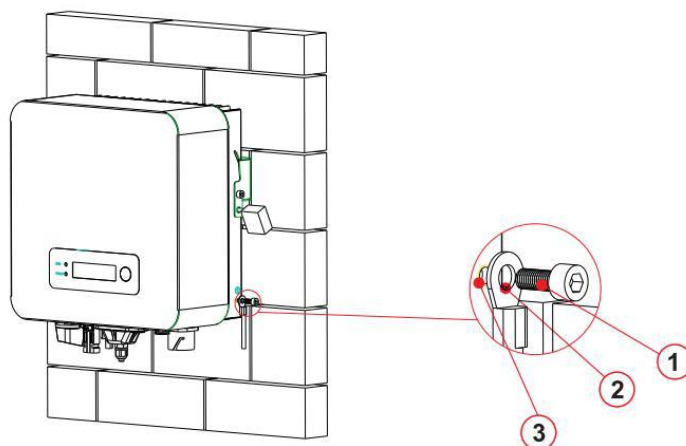
1. Insert the exposed wires in the OT terminal and crimp them using a crimping tool, as shown in Figure 16.

: L3 is the length between the insulation layer of the ground cable and the crimped part. L4 is the distance between the crimped part and the conductor wires protruding from the crimped part.

The cavity formed after the conductor has been crimped must completely wrap the conductor wires. The core of the wire must be in close contact with the terminal.



2. Install the crimped OT terminal and flat washer using the M5 screw in the hole located on the inverter heatsink, as shown in the figure; tighten the screw to a torque of 3 Nm using an Allen key.





Connect the 1PH 2700TL-3300TL-V3 inverter to the photovoltaic strings using DC input power cables.

Depending on the type of inverter, select the appropriate inverter accessories (cables, fuse holder, fuse, switch, etc). The inverter associated with the PV array must offer excellent performance and reliable quality. The open-circuit voltage of the photovoltaic system must be lower than the maximum DC input voltage of the inverter. The output voltage of the strings must be compatible with the MPPT voltage range.

The positive and negative polarities of the panel on the inverter must be connected separately. The power cable must be suitable for photovoltaic applications.

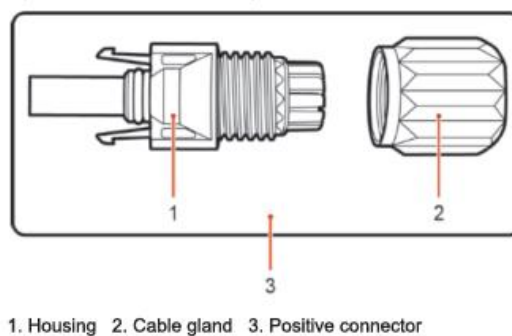


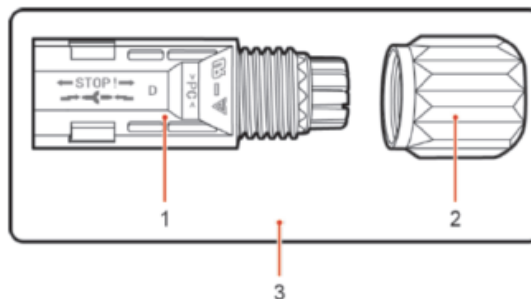
- The modules connected in series in each string must have the same brand and model.
- The open-circuit voltage for each string must be less than 1000 VDC.
- The output power for each PV string must be less than or equal to the maximum input power allowable for 1PH 2700TL-3300TL-V3 inverters.
- The positive and negative terminals of the PV strings must be connected respectively to the positive and negative inputs of the input terminal block.

	<ul style="list-style-type: none"> • Before connecting the power supply, be sure to disconnect the generator's DC
	<ul style="list-style-type: none"> •
	<ul style="list-style-type: none"> •
	<ul style="list-style-type: none"> •

Range	Recommended value	
4.0-6.0 / 11-9	4.0 / 11	4.5 - 7.8

The DC input connectors (MC4) are classified into positive and negative connectors, as shown in the figures below.

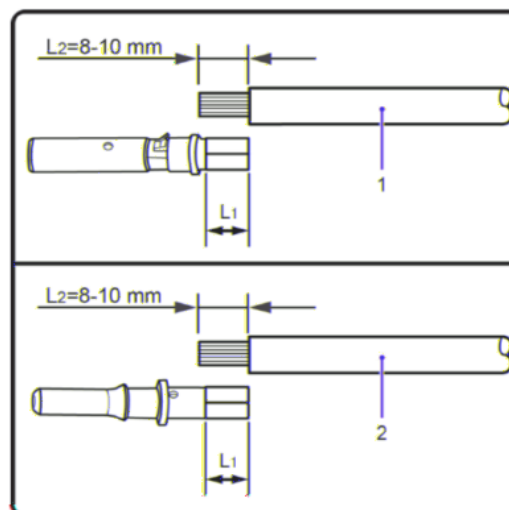




1. Housing 2. Cable gland 3. Negative connector

The positive and negative metal terminals are packed together with the positive and negative connectors respectively. Separate the positive and negative metal terminals after unpacking the inverter so as to avoid confusing the polarities.

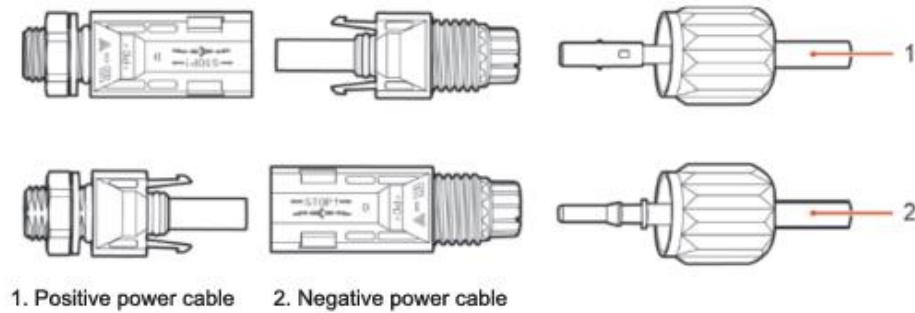
- 1) Remove the cable glands from the positive and negative connectors.
- 2) Remove an appropriate length of the insulation layer from the positive and negative power cables by using a wire stripper, as shown in the figure.



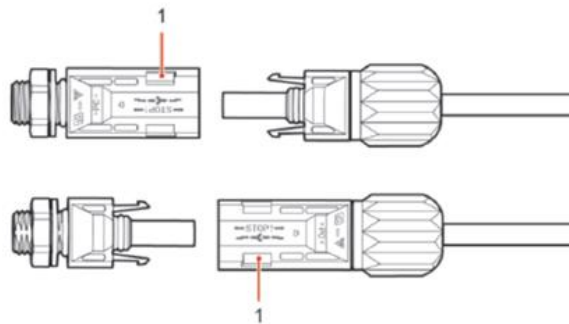
1. Positive power cable 2. Negative power cable

L2 is approximately 2 or 3 mm longer than L1.

- 3) Insert the positive and negative power cables in the corresponding cable glands.
- 4) Insert the stripped positive and negative power cables in the positive and negative metal terminals respectively, and crimp them using a suitable tool. Make sure that the cables are secured so that they cannot be pulled out with a force of less than 400 N, as shown in Figure 20



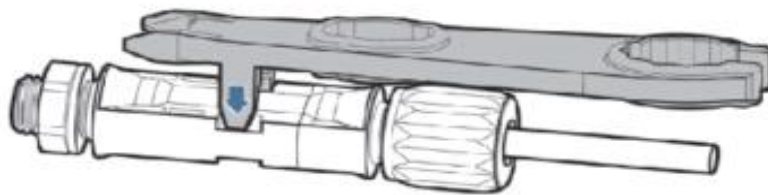
- 5) point, the power cables will snap into place.
- 6) Replace the cable glands on the positive and negative connectors and rotate them against the insulation covers.
- 7) Insert the positive and negative connectors in the corresponding DC input terminals of the inverter




To remove the positive and negative connectors from the inverter, insert a removal tool in the bayonet coupling and press the tool with adequate force, as shown in the figure below.



inverter's circuit breaker is switched off. If not, the direct current may cause an



Connect the inverter to the AC power distribution network or power grid using AC power cables.

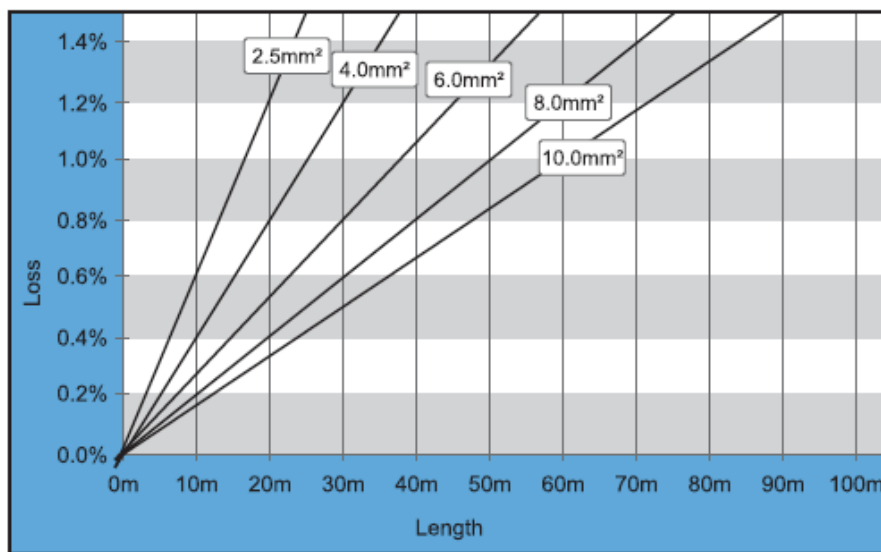
	<ul style="list-style-type: none"> • • •

The AC power cables used for the inverter must be three-pole outdoor cables. For easier installation, use flexible cables. The table lists the recommended specifications for cables and circuit breakers.

Type						
Cable (mm ²)						
Switch	16A/400V	16A/400V	25A/400V	25A/400V	25A/400V	25A/400V

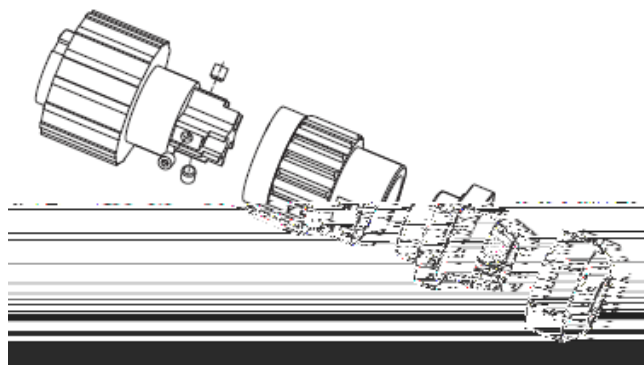
For safety reasons, make sure to use suitably sized cables, otherwise the current may cause overheating or overloading, which could result in a fire.

The cross-section of the power line must be sized in order to prevent unwanted disconnections of the inverter from the grid due to high impedance of the cable connecting the inverter to the point of supply. In fact, excessive impe

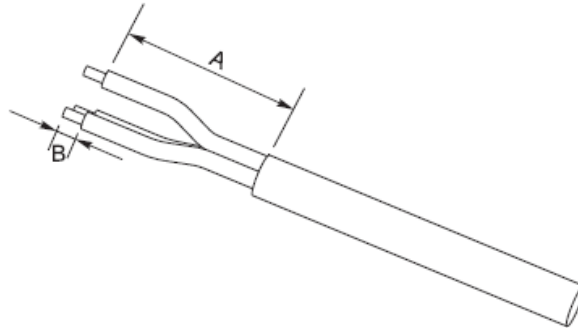


The 1PH 11100TL 3300TL-V3 inverters are single-phase output inverters that fully comply with the local grid connection requirements and safety standards.

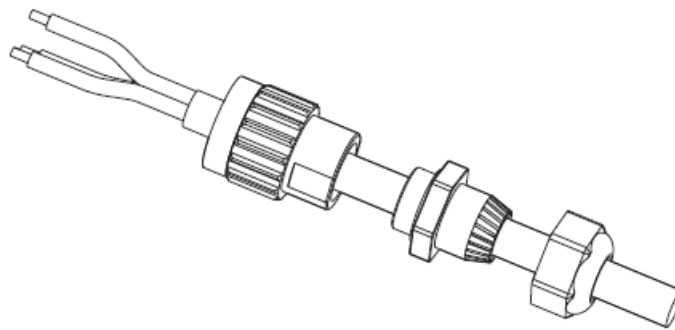
The inverters are equipped with AC output connectors with IP66 protection suitable for photovoltaic use; the installer of the system is responsible for connecting the AC output cable; the figure of the AC connector is shown below.



- 1) Identify the suitable cables as shown in table 2 and remove an appropriate length of the protective sheath, as shown in the figure (A: 30~50 mm B: 6~8 m).



- 2) Disassemble the AC connector as shown in the figure below; insert the AC output cable (with its stripped insulation layer as shown in step 1) through the PG waterproof cable gland.

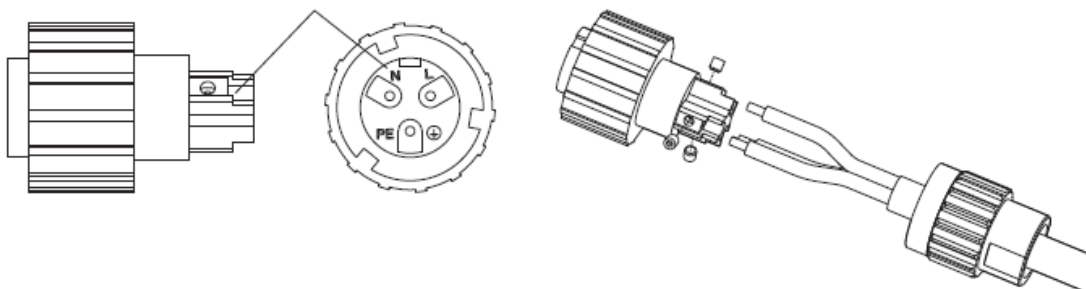


- 3) Connect the AC power cable according to the following criteria:

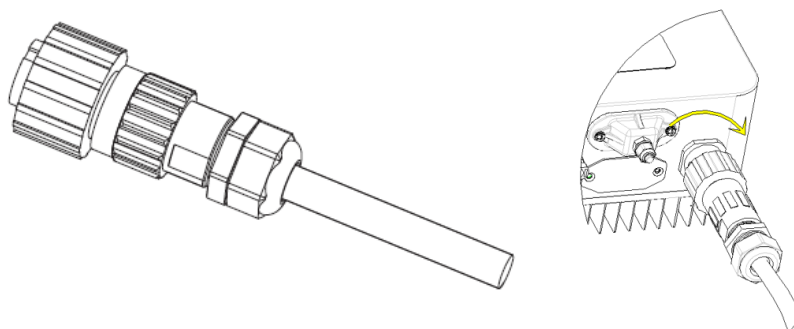
D fd if h e f f -h ff if i f bcf fe QF b e hi f if dbc f i b B f
key;

D fd if f f c if i f bcf fe M b e hi f if dbc f i b B f f

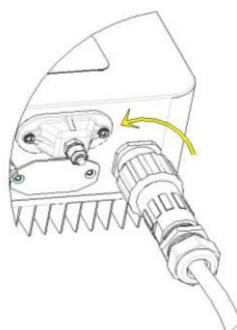
D fd if f b f c f if i f bcf fe O b e hi f if dbc f i b B f f



- 4) Secure the clamping cable gland by rotating it in a clockwise direction, as shown below; make sure that all the wires are securely connected
- 5) Connect the AC output connector to the output terminal of the inverter; turn the AC connector in a clockwise direction until the fixing device reaches its intended position, as shown below:



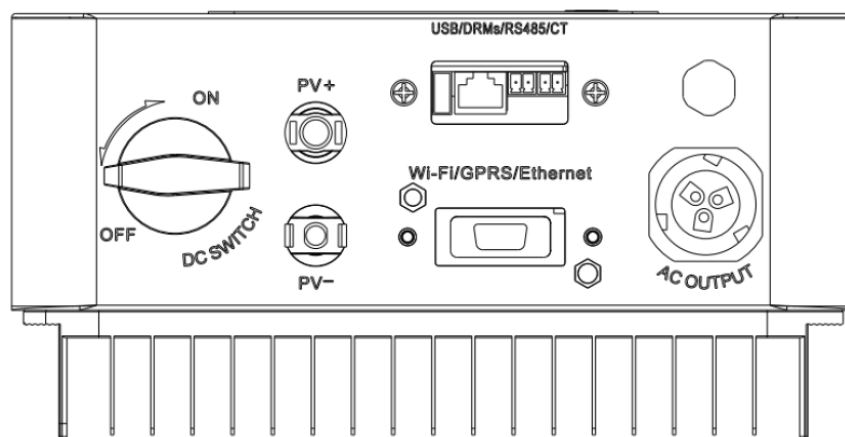
Disconnect the AC connector from the output terminal of the inverter, turning it in an anti-clockwise direction until the fixing device reaches its intended position, as shown below:





The figure below shows the arrangement of the communication ports on the inverters

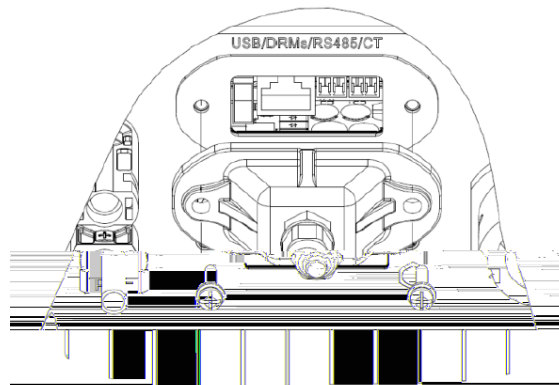
1PH 1100TL - 3300TL-V3.



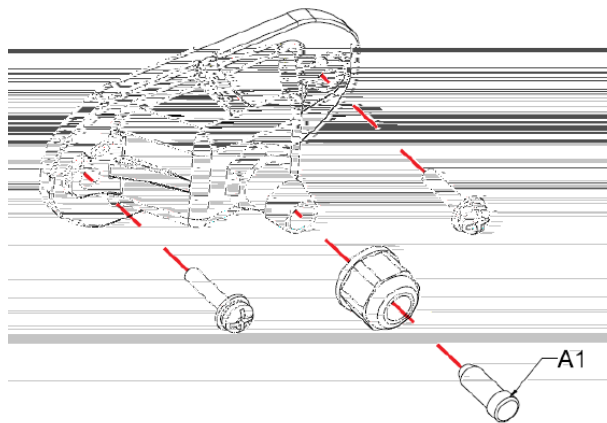
Note: The wiring procedure is the same for the RS485 input, I/O input and CT input. This chapter describes the procedure for connecting the communication cables.

Cable cross-section	0.5 - 1.5 mm ²	0.5 - 1.5 mm ²
Outer diameter	2.5~6 mm	2.5~6 mm

- 1) Remove the central waterproof cover of the communication terminal block using a star screwdriver;



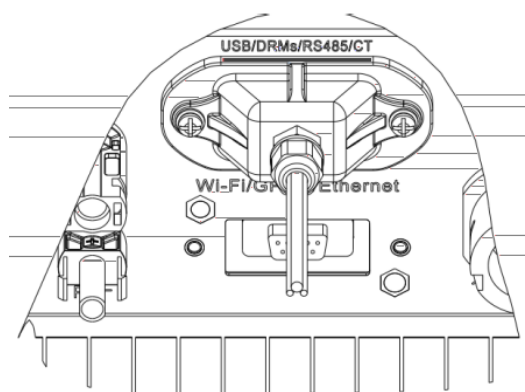
- 2) Turn the waterproof cable gland; remove the cap in the waterproof cable gland;



The waterproof connectors refer respectively to (from left to right): RS485 and CT. Remove the waterproof connectors according to the communication functions to be used. DO NOT remove the unused connectors.

- 3) Choose a suitable cable according to Table 3 and remove the outer insulation part using a cable stripping tool (6 mm); thread the cable through the cable gland and the waterproof cable glands.
- 4) Choose the terminal according to Table 4, connect the cables as shown in the labels and secure them using a flat screwdriver.

keep the unused terminals for future use.





- Before turning on the inverter, it is necessary to examine the photovoltaic string. Check the open-circuit voltage of each photovoltaic panel and compare it with the data in the technical datasheet.
 - Make sure that the open-circuit voltage of each PV string corresponds to the technical data and that it is lower than the maximum input voltage permitted by the inverter
 - Make sure that the positive and negative polarities are correct.
- Use the multi-meter to check the voltage on the DC side; check the DC cable, make sure that the positive and negative polarities are not inverted, and are consistent with the positive and negative polarities of the photovoltaic string.
- Make sure that the AC switch of the inverter is off. Check that the inverter is connected to the grid properly. Check that the phase voltage is within the correct range. If possible, measure the THD; if there is too much distortion, the inverter may not operate.

- 1) Turn ON the DC switch both on the field panel and on the photovoltaic inverter; wait for the screen to turn on.
- 2) Turn ON the AC switch installed on the wall.

When the photovoltaic string generates enough direct current, the inverter will start automatically.

U i f e b i i f d f f e d b f i f d f d g d h g i f f f

- 3) Set the correct country code (refer to chapter 6.3 of this manual).

Note: Different grid operators in different countries require different specifications regarding the grid connections of PV inverters. Therefore, it is very important to select the correct country code according to the requirements of the local authorities.

If in doubt, consult the system engineer or a qualified electrician.

Zucchetti Centro Sistemi S.p.A. shall not be held responsible for any consequences resulting from the incorrect selection of the country code.

If the inverter indicates the presence of any faults, refer to chapter 7.1 of this manual or contact the Zucchetti Centro Sistemi S.p.A. technical support.

This section describes the display and its operation, as well as the buttons and LED indicators of the 1.1K-3.3K TL inverters.



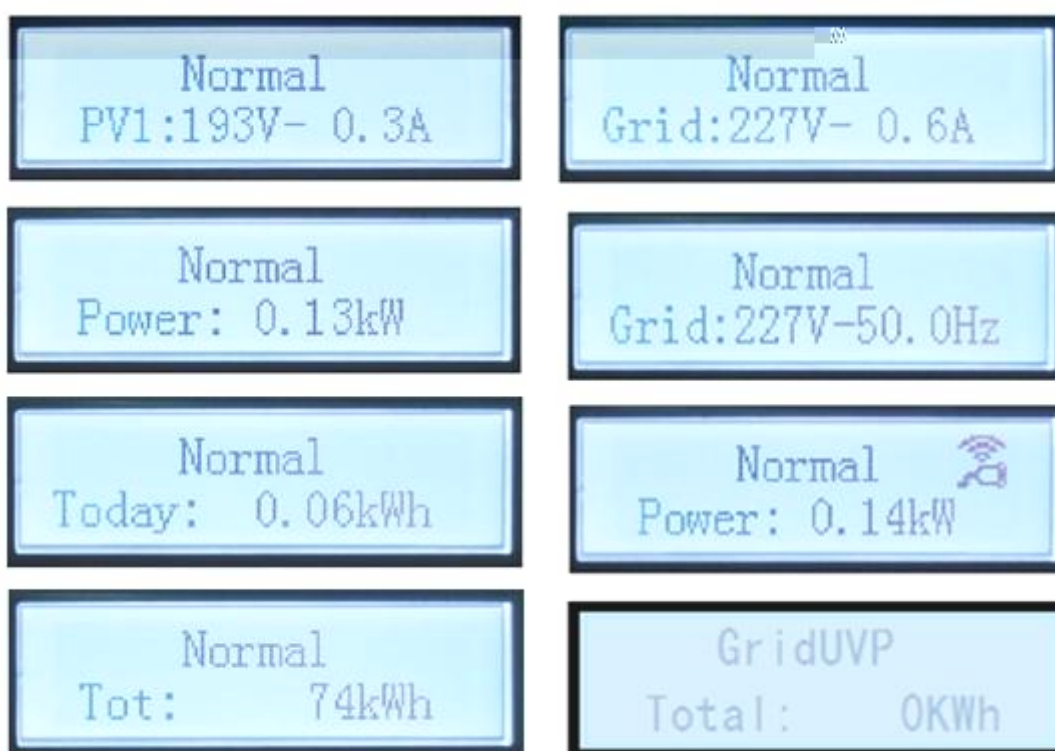
- Long press the button to enter the menu and confirm the selection
- Short press the button to move to the next section
- Scroll through all the menus to return to the homepage

- Status light (GREEN)
 - Flashing: wait or status check
 - Steady: normal operation
 - Off: temporary or permanent error

- Warning light (RED)
 - Steady: temporary or permanent error
 - Off: normal operation

Below are some examples of the main screen, obtained by short pressing the key.

- | | |
|--|--|
| • Voltage and current present on the channel | • AC grid voltage and AC current produced |
| • Power produced by the inverter | • AC grid voltage and frequency of the grid |
| • Energy produced during the day (depending on the time setting) | • Wi-Fi network connection icon or RS485 cable |
| • Total energy produced by the inverter | • AC grid disconnection error |

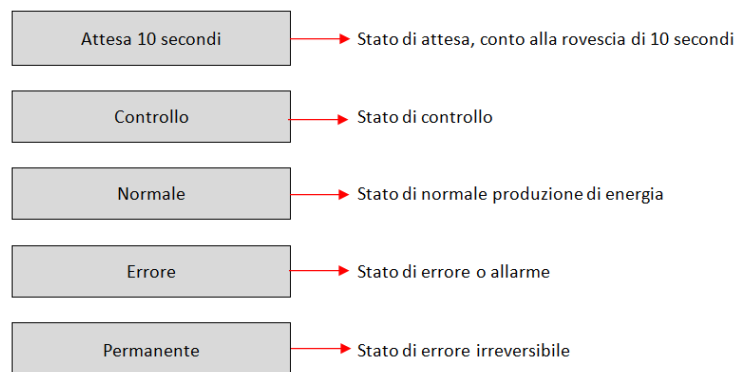


-

Board is correctly connected to the communication board, the LCD display will show the current status of



the inverter, as shown in the figure below.



the inverter is waiting for the control status at the end of the reconnection time. In this status, the PV voltage must be higher than 100 V, the grid voltage value must be between the minimum and maximum permissible limits, as should the other grid parameters; otherwise, the inverter will go into an error state.

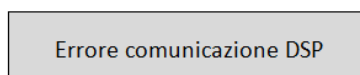
the inverter is checking the insulation resistance, relays and other safety parameters. It also runs a self-test to ensure that the software and hardware of the inverter are functioning properly. The inverter will go to an error state if any faults or anomalies are found.

: the inverter is functioning properly and is feeding power into the grid. If any faults are found, the inverter will go into an error state.

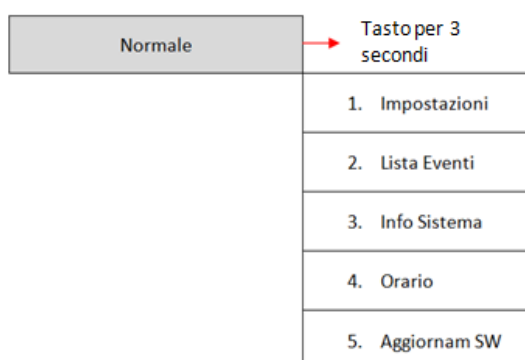
the inverter has encountered a non-permanent error. If the error disappears on its own, the inverter will return to its normal state. If the error continues, please check the error code.

the inverter has encountered a permanent error. The installer must debug this type of error according to the code found in order to bring the inverter back to its proper functioning.

If the control board and communication board are not connected, the interface of the LCD display appears as shown in the figure below.



Long press (3 seconds) the button when you are in the main interface screen to enter the main menu, which will appear as follows:



Press the key for 3 seconds to enter the “Settings” menu.

When the country code is set at 01 (CEIO- f b i f Tf h f i i f g h c-
 menu:

1. Impostazioni		
1. Data e Ora	13. HZ Sicurezza	
2. Azzerà Energia	14. Isolamento	
3. Elimina Eventi	15. Test Relay	
4. Imposta Paese	16. Imp Reattiva	
5. Contr Remoto	17. Derating P(W)	
6. Comando Relay	18. Contr P(rete)	
7. Abilita Paese	19. Autotest Fast	
8. ImpostaEnergia	20. Autotest STD	
9. Indiriz Modubs	21. Imposta P(f)	
10. Lingua	22. Imposta Q(v)	
11. ParametriIniz	23. Control 81.S1	
12. V Sicurezza		

Short press the key to go to the next item of the menu.

Tf fd Eb f b e f b e h f i f f f f i f f g f h i f e b f f G f i f
 date and then the time by short pressing the key to change the number in a progressive manner. Long press
 the key to move to the next digit. The date and time are expressed in the format: 20YY MM - DD
 HH:MM:SS.

U i f e b i PL g i f f h d f d b e F d b f g b f
 U i f e b f b e f b f c f i f c f U f i f b f

Tf fd S f f F f h b e h f i f f f f i f f g e f f h i f f f h e b b b e
 particular the daily and total energy produced, which is shown in the main interface. The display will show
 F f Q E f f i f b e c i f h i f f d f b f i f f d f e e h M h f
 the key to move to the next one and confirm. If the display show F b h b f i f f b h b b e
 enter the password again. When the password entered is correct, the inverter will delete the data relating to
 i f f f h e d f e b e i f e b i PL g i f f h d d f g

Seled Dfb F f b e h f i f f f f i f f g dfb hi db f f f e f f f
 b f b h f f i f M gi db f f c f M h f i f f b i f
 dfe f i f e b i PL g i f operation is successful.

If the display shows "F" (Fault), repeat the above steps and set the code relating to the desired national regulations. Short press the key to increase the selected digit and long press the key to move to the next one and confirm. The display will show "PL" (Parameter List) and the selected code will be confirmed by the display.

Note: The change of the country code will take effect after the next start-up of the inverter.
 For more information and to know the country regulations on board the inverter, refer to the following table.

	Germany VDE AR-N4105
	CEI 0-21 Internal
	Australia
	Spain RD1699
	Turkey
	Denmark
	Greece - mainland
	Netherlands
	Belgium
	UK-G59
	China
	France
	Poland
	Germany BDEW
	Germany VDE 0126

	Greece - islands
	EUEN50438
	IEC EN61727
	Korea
	Sweden
	General Europe
	CEI 0-21 External
	Cyprus
	India
	Philippines
	New Zealand
	Brazil
	Slovakia
	Slovakia SSE
	Slovakia ZSD

	Brazil LV
	Mexico LV
	FAR Arrete23
	Denmark Tr322
	Wide-Range-60HZ
	Ireland EN504
	Thailand PEA
	Thailand MEA
	LV-Range-50HZ
	EU EN50549
	South Africa
	AU-WA
	Dubai DEWG
	Dubai DEWG MV
	Taiwan

	Italy CEI 0-16
	UK-G83

	CEI 0-21 Areti
	Ukraine

	AU-VIC

-

Tf fd F bc fd b e h f i f f f f i f f g f bc h i d code. The
 e b i F f Q E f f i f b e c i f h i f f d f b f i f
 f f d f e e h M h f i f f f i f f f b e d g g i f e b i F b h b
 press the key again and enter the password again. When the password entered is correct, you can enter the menu.

This operation must be carried out if you want to change the Country code and it has not been changed during the last 24 hours of operation of the inverter.

Seled Tf F f h b e h f i f f f f i f f g f h i f f f h b f b e e d f e c
 i f i b d f U i f e b i F f Q E f f i f b e c i f h
 the key to increase the selected digit. Long press the key to move to the next one and confirm. If the display
 i F b h b f i f f b h b b e f f i f b e b h b i f i f b e f f f e
 correct, you can enter the menu. You can now set the amount of energy already produced by the system before installing the current inverter, which is visible from the main interface.

Tf fd N e C B e e f b e h f i f f f f i f f g f f d h i f d d b
 address. Short press the key to increase the selected digit and long press the key to move to the next one and
 d g U i f e b i P L g i f f h d d f g

The Modbus address indicates the address used by the inverter to send its data to the monitoring server. Address 01 is used for single inverters; to extend the monitoring to multiple inverters, use progressive communication addresses.

Note: make sure that the address entered is never 00, because this setting would exclude the possibility of communication between the inverter and Wi-Fi network.

Tf fd M b h b h f b e h f i f f f f i f f g f f d h i f M b h b h f Tf fd i f
 language by short pressing the key, then long press the key to confirm.

g i f f b d d f g P L c f e b f e i f f F c f e b f e

In the current firmware version (V1.00), the languages available are: Chinese, English, Italian, German, French and Portuguese; future firmware updates may add new languages.

The user can change the start parameters directly from the LCD display. The user must first copy the TXT files to the SD card. These files can be requested from Zucchetti Centro Sistemi Spa technical support.

Tf fd Qb b f f b e h f i f f f f i f f n u for setting the start parameters. The
 e b i F f Q E f f i f b e c i f h i f f d f b f i f
 f f d f e e h M h f i f f f i f f f b e d g g i f e b i F
 b h b press the key again and enter the password again. When the password entered is correct, you can
 enter the menu. The new start parameters will now be loaded onto the inverter automatically.
 g i f f h d d f g P L c f e b f e i f f F c f e b f e

Attention: do not enter this menu if the microSD card is not inserted in the appropriate slot of the inverter or if the correct TXT files have not been copied to it.

The user can change the value of the protection voltage directly from the LCD display. The user must first copy the TXT files to the SD card. These files can be requested from ZCS technical support.

Tf fd T b g f W b h f b e h f i f f f f i f f g f h i f f d b h f The
 e b i F f Q E f f i f b e c i f h i f f d f b f i f
 f f d f e e h M h f i f f f i f f f b e d g g i f e b i F
 b h b f i f f b h b b e f f i f b s s w o r d again. When the password entered is correct, you can
 enter the menu. The new protection voltage will now be loaded on the inverter automatically.
 g i f f h d d f g P L c f e b f e i f f F c f e b f e

Attention: do not enter this menu if the microSD card is not inserted in the appropriate slot of the inverter or if the correct TXT files have not been copied to it.

The user can change the value of the protection frequency directly from the LCD display. The user must first copy the TXT files to the SD card. These files can be requested from ZCS technical support.

Tf fd T b g f I b e h f i f f f f i f f g f h i f f d g f f d U i f
 e b i F f Q E f f i f b e c i f h i f f d f b f i f
 f f d f e e h M h f i f f f i f f f b e d g g i f e b i F
 b h b f i f f b h b b e f f i f b e b h b i f i f b e f f f e correct, you can
 enter the menu. The new protection frequency will now be loaded on the inverter automatically.
 g i f f h d d f g P L c f e b f e i f f F c f e b f e

Attention: do not enter this menu if the microSD card is not inserted in the appropriate slot of the inverter or if the correct TXT files have not been copied to it.

The user can change the value of the insulation resistance directly from the LCD display. The user must first copy the TXT files to the SD card. These files can be requested from ZCS technical support.

Tf fd b b e h f i f f f f i f f g f h i f b f b d f U i f
 e b i F f Q E f f i f b e c i f g the key to increase the
 f f d f e e h M h f i f f f i f f f b e d g g i f e b i F
 b h b f i f f b h b b e f f i f b e b h b i f i f b e f f e d f d d b
 enter the menu. The new insulation resistance will now be loaded on the inverter automatically.
 g i f f h d d f g P L c f e b f e i f f F c f e b f e

Attention: do not enter this menu if the microSD card is not inserted in the appropriate slot of the inverter or if the correct TXT files have not been copied to it.

Tf fd S f b d f Tf b e h f i f f f f i f f g f h i f f b d f f d f
 e d f e U i f e b i F f Q E f f i f b e c i f h i f f
 increase the selected digit. Long press the key to move to the next one and confirm. If the display shows,
 F b h b f i f f b h b b e f f i f b e b h b i f i f b e f e r e d i s c o r r e c t ,
 d b f f i f f B i i f i f f f f d i f F b c f E b c f b e
 d g i f f f d c h f h i f f g i f F b c f f f d f e i f i f f
 d i f g V e f - f d f e H e N b b h f P f - f d f e Z c f b c f e d b f i f b f g
 f b d f f e d f e g f b d i g i f g i f f h d d f g P L c f e b f e i f f
 F c f e b f e

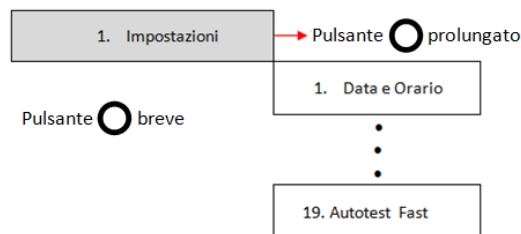
Tf fd E f b h Q b e h f i f f f f i f f b f f g i d i d b f b c f i f
 E f b h g d f i f c f i f f e d f e c i f f f U i f e b i
 F f Q E f f i f b e c i f h i e key to increase the selected digit. Long press
 i f f f i f f f b e d g g i f e b i F b h b f i f f b h b b e
 enter the password again. When the password entered is correct, you can enter the menu. At this point, short
 f i f f f f d i f F b c f E b c f b e d g i f f f d c h f h i f
 f g i f F b c f f f d f e i f i f f f f d i f f d f b h f b f c f f f b e
 100) of the maximum power that the inverter will produce; if the solar radiation allows a greater amount of
 energy to be produced, the inverter will carry out the necessary operations to limit the output power to the
 f b f g i f f h d d f g P L c f e b f e i f f F c f e b f e

Tf fd Q h e D i f d b e h f i f f f f i f f b f f g i d i d b f b c f i f
 S f g Q f g d f i f c f i f b f g e i f h e U i f display will
 i F f Q E f f i f b e c i f h i f f d f b f i f f f d f e e h M h
 f i f f f i f f f b e d g g i f e b i F b h b f i f f
 again and enter the password again. When the password entered is correct, you can enter the menu. At this

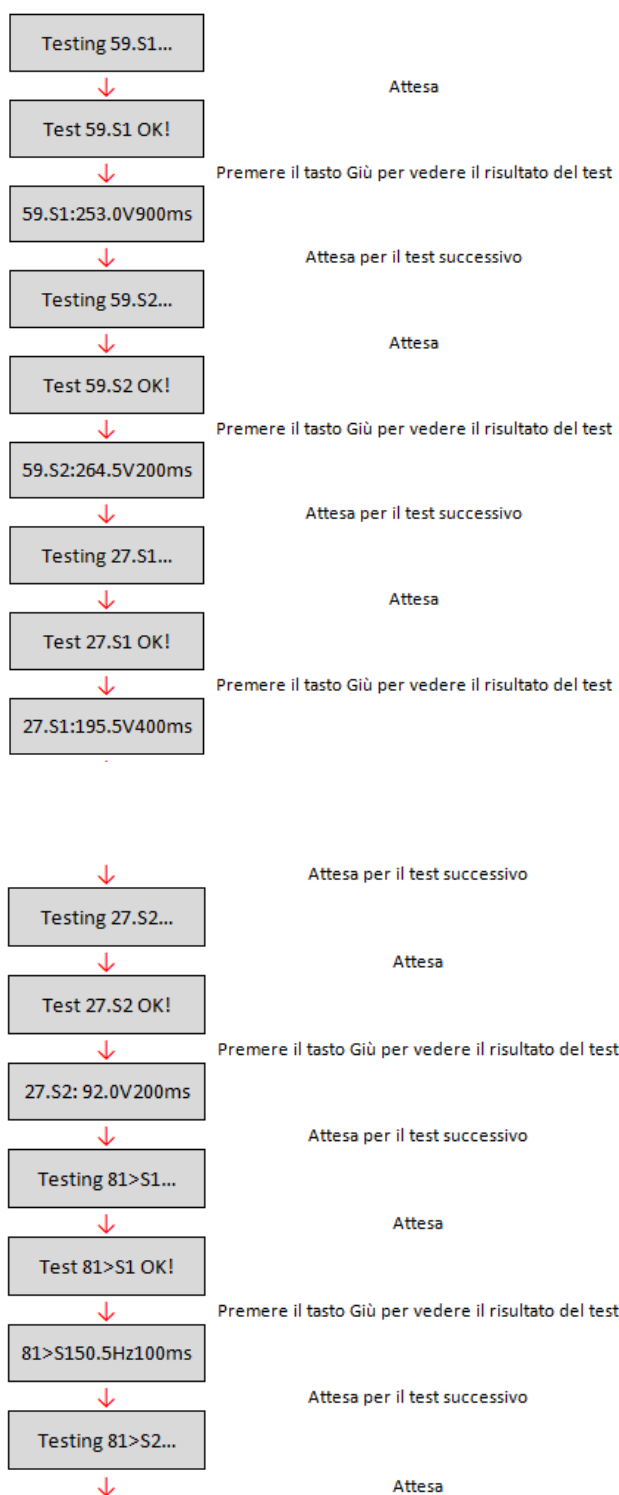
the key to select the value (expressed in kW, up to two decimal places) of the maximum power that the inverter will feed into the grid. In this way the inverter can feed a maximum power of between 0 kW and the rated power of the inverter into the national grid.

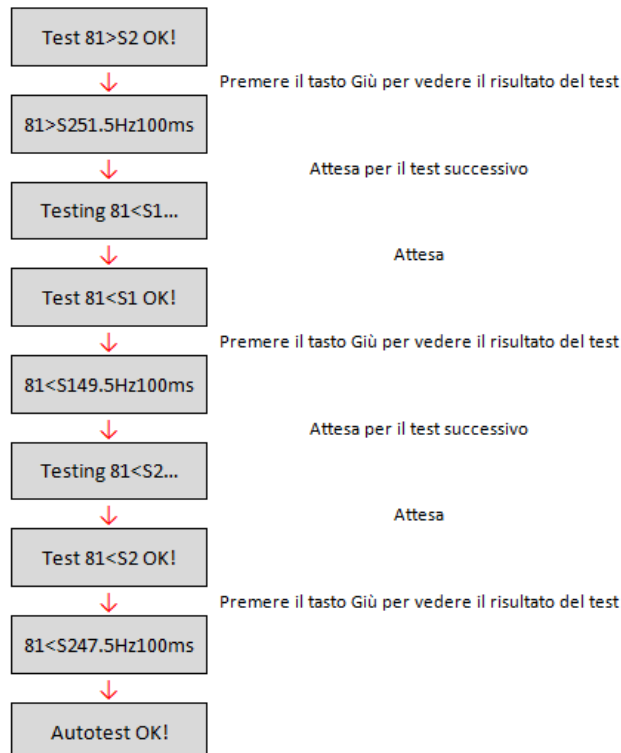
To activate the Reflux Power mode in single-phase inverters, it is necessary to install a CT current sensor, as described in the appropriate procedure.

- 1) During normal operation of the inverter, long press the key to enter the main menu.
- 2) Press the key to select the value.
- 3) Short press the key several times to enter the menu.

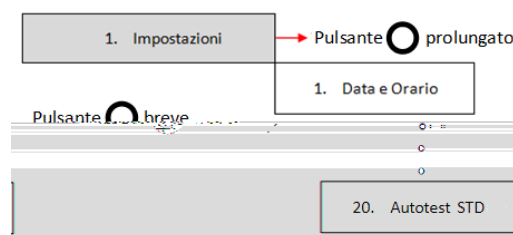


- 4) Long press the key to start the self-test.
- 5) The self-test will now start automatically; once completed, short press the key to display the self-test results, as shown in the figure.

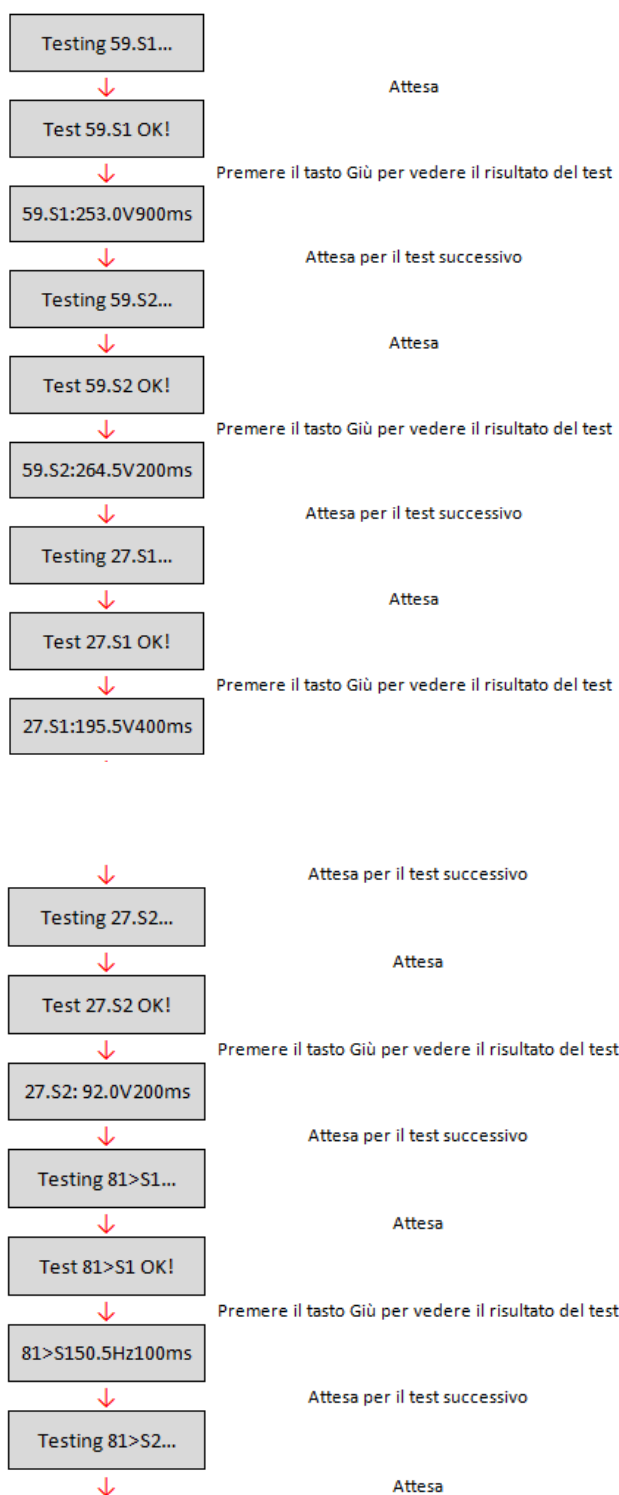


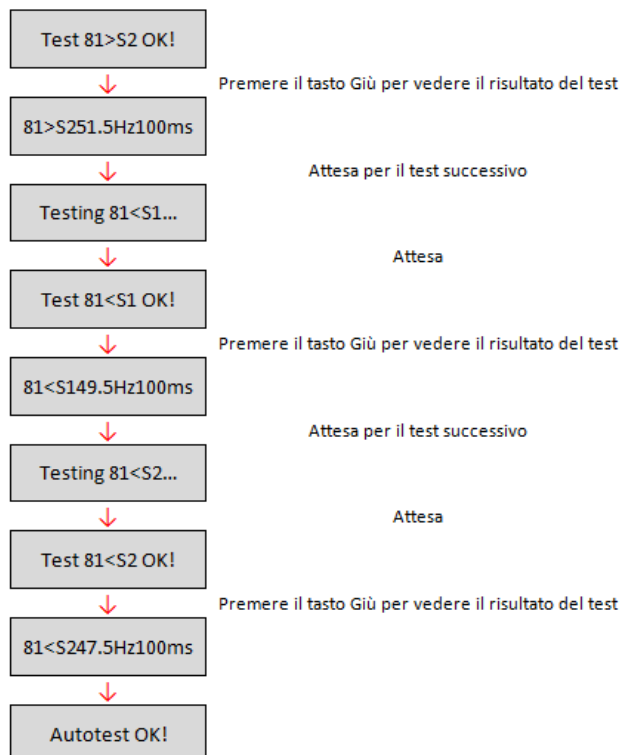


- 1) During normal operation of the inverter, long press the key to enter the main menu.
- 2) M h f i f f b h b f f i f T f h f
- 3) T i f i f f f f b f T U E f g f e b f e i f d f f



- 4) Long press the key to start the self-test.
- 5) The self-test will now start automatically; once completed, short press the key to display the self-test results, as shown in the figure.





Tf fd Tf Q g b e h f i f f f f i f relative menu, from which you can change the active power according to the grid frequency required by the local regulations. This function may be required by various regulations for grid-connected inverters. Short press the key to change the selected value and long press the key to go to the next digit; it will be possible to set the time delay expressed in seconds (*.***s) before the modified P active power will intervene.

Tf fd Tf R W b e h f i f f f f i f f b f f , from which you can change the reactive power according to the grid voltage required by the local regulations. This function may be required by various regulations for grid-connected inverters. Short press the key to change the selected value and long press the key to go to the next digit; it will be possible to set the time delay expressed in seconds (*.***s) before the modified Q reactive power will intervene.

Tf fd T Di fd b e h f i f f f f i f f b f f g which it will be possible to enable the frequency restriction thresholds required in special cases by the local regulations. Short press the f f i f F bc f T b e E bc f T b e f fd c h f h i f f U i f display i PL g i f f h ddf g

The following functions:

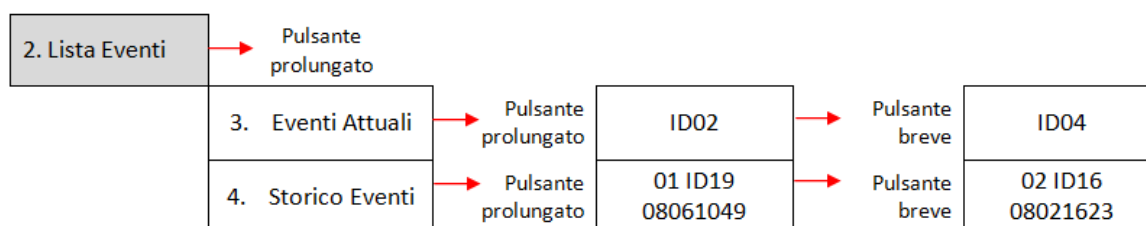
- Sf f D f b h f Sf f D
- Sf b D b e f b h f Sf b D b e
- Sf b f f b h f Sf b Uf

they cannot be used on this model of inverter; access to these submenus is not permitted either by the installer or by the end user. ZCS S.p.A. accepts no responsibility deriving from the activation of one of the settings described above.

he “Event List” menu.

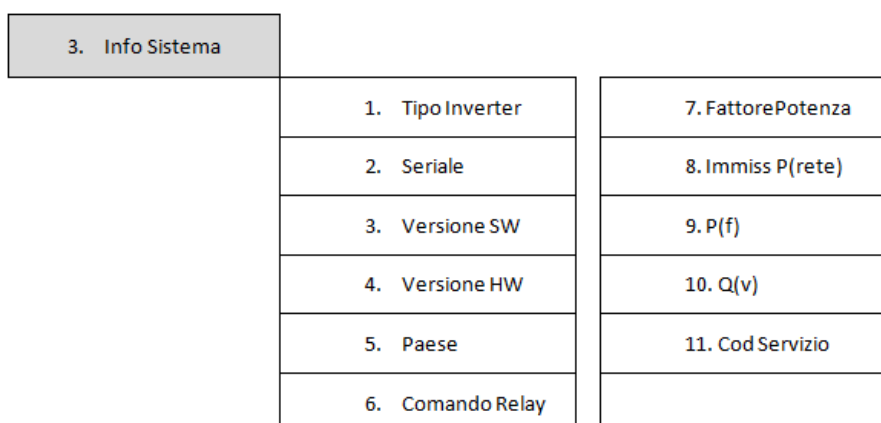
Ui f F f M f fe e b i f f f d e f e c i f f f c i i db b e fb f
 showing the progressive number of the event, the identification code, the date and time of its occurrence. The user can access this interface from the LCD display to check the details of the alarms and alerts. Errors will be listed according to the date and time they occurred, so the most recent events will be listed first. For more information, refer to the figure below.

M h f i f f i f b f g d f b e i f i f i f f i f f f i f f F f
 G i f f db f f d i f D f F f f g i f g d f f f I db F f
 for the list of historical events.



Long press the key to enter the “System Info” menu.

Ui f T f g f d b i f g h c f



G if T f g f i f i f f f b e i e e g b g f d e f f i f
f f f I f f d b f f i f f g i f f f e f

•

G if T f g f i f i f f f b e i e e g b g f d e f f i f
f T f b c f I f f d b f f i f f b c f g i f f f

•

G if T f g f i f i f f f b e i e e g b g f d e f f i f
f T f I f f d b f f i f g b f f

•

G if T f g f i f i f f f b d hold it down for a few seconds to enter the
f I f I f f d b f f i f i b e b f f

•

G if T f g f i f i f f f b e i e e g b g f d e f f i f
f D I f f d b see the country code that has been set.

•

G if T f g f i f i f f f b e i e e g b g f d e f f i f
f Q f g b d I f f d b f f i f b f g i f f g b d

•

From ti f T f g f i f i f f f b e i e e g b g f d e f f i f
f Q H e G f f e- I f f d b f f i f b f g i f f b f g i f f g f e i f h e

•

G if T f g f i f i f key to move it, and hold it down for a few seconds to enter the
f Q g I f f d b f f i f Q g b f i b i b c f f f

•

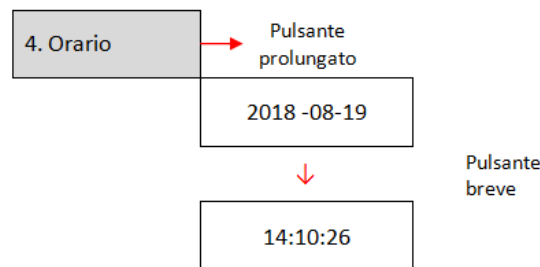
G if T f g f i f i f f f b e i e e g b g f d e f f i f
f R I f f d b f f i f R b f i b i b c f f f

•

G if T f g f i f i f f f b e i e e g b g f d e f f i f
f T f d f D e f I f f d b f f i f d f b f e g b f f r s i o n.

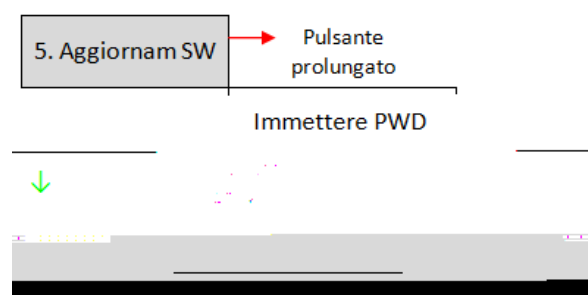
Long press the key to enter the “Date and time” menu.

M h f i f f i f b f g d f b e i f i f f f i f c f E b f b e U f
 then press the key again to display the current date and time set on the inverter.



Long press the key to enter the “Update Software” menu.

M h f i f f i f b f g d f b e i f i f f f i f c f T g b f V e b f
 i f f i f f b h b b d d f U i f e b i F f Q E i f i f f to increase the
 f f d f e e h b e h f i f f h i f f f b e d g g i f e b i F
 b h b f i f f b h b b e f f i f b e b h b i f i f b e i b c f f f f f e d f d
 you can enter the menu and start updating the firmware.



Z d b d i f d i f g b f f d f b f e i f f f g i f T f d f D e f
 c f g e i f T f g f

Do not update the firmware unless you have first inserted the USB device into the appropriate port, or if the appropriate update files are not found in the USB device. Always make sure that the correct update files are loaded on the USB device and that the device is correctly inserted in the appropriate port.

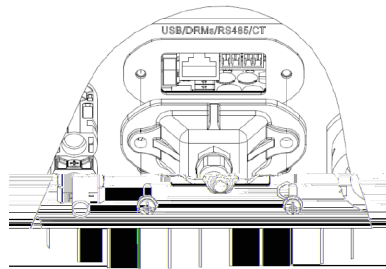
Note: the USB device is not supplied with the inverter and must be procured by the installer or customer.

The complete and detailed procedure for updating the firmware is described below.

USB device (stick) at least 2 GB

PC with USB port

1. Switch off the ZCS inverter by first disconnecting the AC power supply via the switch installed on the system, and then disconnecting the DC power supply via the switch located on the side of the inverter. Wait for the display to turn off completely.
2. Remove the central cover at the bottom of the inverter by unscrewing the two star screws, making sure to have first loosened the four cable glands.



3. Insert the USB device in the appropriate port of the PC, open the drive and create a new folder with the name *firmware*, making sure to match the lowercase and uppercase letters as indicated, and checking that there are no spaces. Now copy the files provided by ZCS to the *firmware* folder.
4. Find the VTC file and copy it to the QD folder.
5. Insert the USB device in the appropriate port of the inverter.
6. Only supply DC power to the inverter through the appropriate switch and wait a few seconds for the display to come on.
7. Long press the key from the display to enter menu, go to SOFTWARE UPDATE by short pressing the key. Enter the password 0715 by pressing PL, then b, i, f, e, b, f.
8. The update process will take about 3 minutes and will run automatically. The following indications will be followed:



DSP1 Update

DSP2 Update

ARM Update

9. Di f d i b i f f f d f f i f e b f d f d b e i b DT OOPWBU PO b fb i f display; the inverter will then start normally. If the update was not successful, one of the following f b h f b f b i f e b D F VQEBUF ETQ GB M VQEBUF ETQ GB M in this case, switch off the inverter, wait one minute and then restart the procedure from step 6.
10. Once the update has been completed successfully, it is necessary to change the country code: enter i f T f h f c h f h i f f i f i f i f f d e i f T f D f b e f f i f d d e f
11. Note: if the inverter has been running for more than 24 hours, this function must first be enabled g i f F b c f D f i d d f e f g i f T f h f F f i f password 0001.
12. Switch off the inverter via the disconnecting switch on the DC line.
13. S f b i f f f c h E D f b e f f i f f d e n u again. Set the country code according to the appropriate grid standard (e.g. for Italy: CEI-021 INT, CEI-021 EXT, CEI-016).
14. Switch off the system and restart it after waiting a few minutes, as indicated in step 12.
15. The update procedure has now been completed, and the inverter can now be connected to the AC f c d f d h i f h e U i f f g b f f d b c f d i f d f e g i f T f d f D e f submenu l d b f e e f i f T f g f

This section contains information and procedures on how to troubleshoot any faults and errors that may occur during operation of the 1PH 2700TL-3300TL-V3 inverter.

- Check the warning messages and error codes on the information panel of the inverter. Record them before carrying out any further operation.
- If the inverter does not display any errors, perform the following checks:
 - Is the inverter located in a clean, dry and properly ventilated place?
 - Is the DC switch closed?
 - Are the cables correctly sized and as short as possible?
 - Are the input/output connections and the cables in good condition?
 - Are the configuration settings correct for the type of installation?
 - Are the display and flat cable correctly connected and not damaged?

Follow the steps below to display the recorded alarms:

Long press the key to enter the main menu from the standard interface. If the main menu is displayed, then long press the key to access the list of alarms and errors.

	GridOVP	The grid voltage is too high.	<p>If the alarms occurs occasionally, the probable cause is that the electric grid is in an abnormal state.</p> <p>The inverter will automatically return to its normal operating state when the electrical grid is restored to</p>
	GridUVP	The grid voltage is too low.	

	GridOFP	The grid frequency is too high.	its normal state.
	GridUFP	The grid frequency is too low.	<p>If the alarm occurs frequently, check whether the grid voltage/frequency is within the correct range. If not, contact technical support. If so, check the AC circuit breaker and the AC wiring of the inverter.</p> <p>If the voltage/frequency is within the acceptable range and the AC wiring is correct while the alarm occurs repeatedly, contact Technical Support to change the grid overvoltage, undervoltage, over-frequency and under-frequency protection points after obtaining approval from the local grid operator.</p>
	PvUVP	The input voltage is too low.	<p>Check whether too many PV modules have been connected in series per string: therefore, the voltage (Voc) of the photovoltaic string is higher than the minimum input voltage of the inverter. In this case, increase the voltage of the PV string by adjusting the number of photovoltaic modules mounted in series, making sure that it matches the input voltage range of the inverter. The inverter automatically returns to its normal operating state after the string has been corrected.</p>
	Vlvrtlow	LVRT function error	Contact Technical Support
	Vovrthigh	OVRT function error	
	PvOVP	The input voltage is too high.	<p>Check whether too many PV modules have been connected in series per string: therefore, the voltage (Voc) of the photovoltaic string is higher than the maximum input voltage of the inverter. In this case, decrease the voltage of the PV string by adjusting the number of photovoltaic modules mounted in series, making sure that it falls within the input voltage range</p>

			of the inverter. The inverter automatically returns to its normal operating state after the string has been corrected.
	IpvUnbalance	The input current is unbalanced.	<p>Check the configuration of the input mode (parallel mode / independent mode) of the inverter, as indicated in Section 6.3 (C).</p> <p>Ne f g i f b b g this setting is not correct, change it according to Section 6.3 (A D gh b g e f g i manual. If the input mode is correct, turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.</p>
	PvConfigSetWrong	Incorrect input mode	
	GFCIFault	Faulty automatic differential circuit breaker.	<p>If the fault occurs occasionally, the probable cause is that the external circuits have temporary faults.</p> <p>The inverter automatically returns to its normal operating state after the error has been fixed.</p> <p>If the fault repeats itself often and lasts for a long time, check whether the insulation resistance between the PV string and the ground is too low, then check the insulation conditions of the PV cables.</p>
	HwBoostOCP	The input current is too high and has caused the hardware protection to be activated.	Check if the input current is higher than the maximum input current allowed by the inverter, then check the input wiring; if both are correct, contact Technical Support.
	HwAcOCP	The grid current is too high and has caused the hardware protection to be activated.	ID15-ID24 are internal faults of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check

	AcRmsOCP	The grid current is too high.	that the fault is no longer present. If this is not the case, contact Technical Support.
	HwADFaultIGrid	Sampling error of the grid current	
	HwADFaultDCI	DCI sampling error	
	HwADFaultVGrid	Sampling error of the grid voltage	
	GFCIDeviceFault	GFCI sampling error.	
	MChip_Fault	The Master Chip is faulty	
	HwAuxPowerFault	Auxiliary voltage error	
	BusVoltZeroFault	Sampling error of the bus voltage	
	IacRmsUnbalance	The output current is unbalanced	
	BusUVP	The bus voltage is too low.	If the configuration of the PV string is correct (no ID05 error is present), the possible cause is that the solar radiation is too low. The inverter resumes normal operation as soon as the solar radiation returns to levels compatible with the machine's functioning
	BusOVP	The bus voltage is too high.	Internal fault of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.
	VbusUnbalan	Bus voltage is unbalanced	
	DciOCP	The DCI is too high.	Check the configuration of the input mode (parallel mode / independent mode) of the inverter, as indicated in Section 6.3 (C). N e f g i f b b g this setting is not correct, change it

			according to Section 6.3 (A D gh b g ef g i manual. If the input mode is correct, turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.
	SwOCPIstant	The grid current is too high.	Internal fault of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.
	SwBOCPIstant	The input current is too high.	Check whether the input current is higher than the maximum input current allowed by the inverter, then check the input wiring; if both are correct, contact Technical Support.
	Reserved	Reserved	Reserved
	ConsistentFault_VGrid	The grid voltage sampling value between the master DSP and slave DSP is not the same.	ID49-ID55 are internal faults of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.
	ConsistentFault_FGrid	The grid frequency sampling value between the master DSP and slave DSP is not the same.	
	ConsistentFault_DCI	The current sampling value of the automatic differential circuit breaker (DCI) between the master DSP and the slave DSP is not the same.	

	ConsistentFault_GFCI	The current sampling value of the automatic differential circuit breaker (GFCI) between the master DSP and the slave DSP is not the same.	
	SpiCommLose	SPI communication error between the master DSP and the slave DSP.	
	SciCommLose	SCI communication error between the master DSP and the slave DSP.	
	RelayTestFail	Relay fault.	
	PvIsoFault	The insulation resistance is too low.	Check the insulation resistance between the photovoltaic string and the ground, if the insulation is low, rectify the fault.
	OverTempFault_Inv	The temperature of the inverter is too high.	Make sure that the installation position and the installation method meet the requirements of Section 3.4 of this manual. Check if the ambient temperature in the installation location exceeds the allowed limit. If so, improve the ventilation to reduce the temperature.
	OverTempFault_Boost	The boost temperature is too high.	
	OverTempFaultEnv	The ambient temperature is too high.	
	UnrecoverHwAcOCP	The grid current is too high and has caused irreparable hardware failure.	ID65-ID70 are internal faults of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical
	UnrecoverBusOVP	The bus voltage is too high and has caused an irreparable fault.	

	UnrecoverIacRmsUnbalance	The grid current is not balanced and has caused an irreparable fault.	Support.
	UnrecoverIpvUnbalance	The input current is not balanced and has caused an irreparable fault.	
	UnrecoverVbusUnbalance	The bus voltage is not balanced and has caused an irreparable fault.	
	UnrecoverOCPIinstant	The grid current is too high and has caused an irreparable fault.	
	UnrecoverPvConfigSetWrong	Incorrect input mode	<p>Check the configuration of the input mode (parallel mode / independent mode) of the inverter, as indicated in Section 6.3 (C).</p> <p>Nevertheless, if this setting is not correct, change it according to Section 6.3 (A) of the manual. If the input mode is correct, turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.</p>
	UnrecoverIPVInstant	The input current is too high and has caused an irreparable fault.	<p>ID74-ID77 are internal faults of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.</p>
	UnrecoverWRITEEEPROM	The EEPROM is unrecoverable.	
	UnrecoverREADEEPROM	The EEPROM is unrecoverable.	

	UnrecoverRelayFail	The relay has generated a permanent fault.	
	OverTempDerating	The inverter has been derated because the temperature is too high.	<p>Make sure that the installation position and the installation method meet the requirements of Section 3.4 of this manual.</p> <p>Check if the ambient temperature in the installation location exceeds the allowed limit. If so, improve the ventilation to reduce the temperature.</p>
	OverFreqDerating	The inverter has been derated because the grid frequency is too high.	The inverter automatically reduces the output power when the frequency of the electrical grid is too high.
	RemoteDerating	The inverter has been derated by remote control	The inverter reports ID83 when the power derating is activated via remote control. Check the functionality of the control in section 4.5 of this manual.
	RemoteOff	The inverter has been switched off via remote control	The inverter reports ID84 when the power derating is activated via remote control. Check the functionality of the control in section 4.5 of this manual.
	UnderFreqDerating	The inverter has been derated because the grid current is too low.	The inverter automatically reduces the output power when the frequency of the electrical grid is too low.
	Reserved	Reserved	Reserved
	Lightning protection alarm	Activation of lightning overvoltage protection	Please check if the machine is damaged, and if so, contact Technical Support.
	The software version is unsuitable	The software of the control board and communication board	Contact Technical Support to update the software.

		do not match.	
	Faulty EEPROM communication board.	The EEPROM communication board is faulty.	ID95-ID96 are internal faults of the inverter; turn off the DC disconnecting switch and wait 5 minutes, then turn on the DC disconnecting switch again. Check that the fault is no longer present. If this is not the case, contact Technical Support.
	Faulty RTC clock chip	The RTC clock chip is faulty.	
	Invalid country	The country selected is not valid.	Check the configuration of the country, as indicated in Section 6.3 (C) 5 Country of this user manual; if it is not correct, change it according to Tf d B D gh b g d d ef g i b b
	Faulty SD	The SD card is faulty.	Replace the microSD card.
-	Reserved		Reserved

Inverters generally do not require daily or routine maintenance. In any case, for proper long-term operation of the inverter, make sure that the heatsink for cooling the inverter has enough space to ensure adequate ventilation and that it is not obstructed by dust or other items.

Use an air compressor, a soft dry cloth or soft-bristled brush to clean the inverter. Do not use water, corrosive chemical substances or aggressive detergents to clean the inverter. Disconnect the AC and DC power to the inverter before performing any cleaning operations.

Use an air compressor, a soft dry cloth or soft-bristled brush to clean the heatsink. Do not use water, corrosive chemical substances or aggressive detergents to clean the heatsink. Disconnect the AC and DC power to the inverter before performing any cleaning operations.

- Disconnect the inverter from the AC grid.
- Switch off the DC switch.
- Wait 5 minutes.
- Remove the DC connectors.
- Remove the AC terminals.
- Unscrew the fixing bolt of the bracket and remove the inverter from the wall.

If possible, pack the inverter in its original packaging.

Store the inverter in a dry place where the ambient temperature is between -25 and +60°C.

Zucchetti Centro Sistemi S.p.a. is not liable for the disposal of the equipment, or parts thereof, that does not take place according to the regulations and standards in force in the country of installation.



The symbol of the crossed-out wheeled bin indicates that the equipment, at the end of its useful life, must be disposed of separately from household waste.

This product must be handed over to the waste collection point in your local community for recycling.

For more information, please contact the waste collection authority in your country.

Inappropriate waste disposal could have negative effects on the environment and on human health due to potentially hazardous substances.

With your cooperation in the correct disposal of this product, you contribute to the reuse, recycling and recovery of the product, and to the protection of our environment.



DC Input data							
Maximum DC Power	1500W	2200W	3000W	3700W	4100W	4500W	
No. of independent MPPTs / No. of strings per MPPT	1/1						
Maximum DC input voltage	500V			550V			
Start-up voltage	70V						
Nominal DC input voltage	360V						
MPPT DC voltage range	50V-500V						
DC voltage range at full load	90V-450V	110V-450V	150V-450V	200V-500V	250V-500V	250V-500V	
Maximum input current for each MPPT	12A						
Maximum absolute current for each MPPT	15A						
AC Output data							
Rated AC power	1100W	1600W	2200W	2700W	3000W	3300W	
Maximum AC power	1100VA	1600VA	2200VA	2700VA	3000VA	3300VA	
Maximum AC current	5.3A	7.7A	10.6A	13A	14.5A	16A	
Connection type/Nominal grid voltage	Single-phase L/N/PE / 220V, 230V, 240V						
Grid voltage range	180V~270V (according to the local grid standards)						
Rated grid frequency	50Hz/60Hz						
Grid frequency range	45Hz~53Hz / 57Hz~63Hz (according to the local grid standards)						
Total harmonic distortion	<3%						
Power factor	1 (Programmable +/-0.8)						
Active power adjustable range	0~100%						
Grid feed limit	No						
Efficiency							
Maximum efficiency	97.5%			97.7%			
Weighted efficiency (EURO)	96.9%			97.2%			
MPPT efficiency	>99.9%						
Consumption at night	<1W						
Protections							
Internal interface protection	Yes						
Safety protections	Anti-islanding, RCMU, Ground Fault Monitoring						
Reverse polarity protection DC	Yes						
DC circuit breaker	Integrated						
Overheating protection	Yes						
Overvoltage category/Protective class	Overvoltage Category III / Protective class I						
Integrated dischargers	AC/DC MOV: Type 3 Standard						
Standard							
EMC	EN 61000-6-1/2/3/4,						
Safety standard	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2						
Grid connection standard	AS 4777, VDE V 0124-100, VDE V 0126-1-1, VDE-AR-N 4105, EN50438, G83/2, C10/11, RD1699, CEI 0-21						
Communication							
Communication interfaces	Wi-Fi or Ethernet or 4G (optional), RS485 (proprietary protocol), USB						
Additional inputs or connections	Input for current sensor connection						
Data storage on SD	25 years						
General data							
Allowable ambient temperature range	-30°C...+60°C (power limit above 45°C)						
Topology	Transformerless						
Environmental protection class	IP65						
Allowable relative humidity range	0%.....95% non-condensing						
Maximum operating altitude	2000m						
Noise level	< 25dBA @ 1mt						
	5.5 Kg				6.3 Kg	Weight	
	Natural convection						Cooling
x D)	303mm x 260mm x 118mm	321mm x 260mm x 131.5mm					Dimensions (H x W x D)
	LCD						Display
	5 or 10 years						Warranty

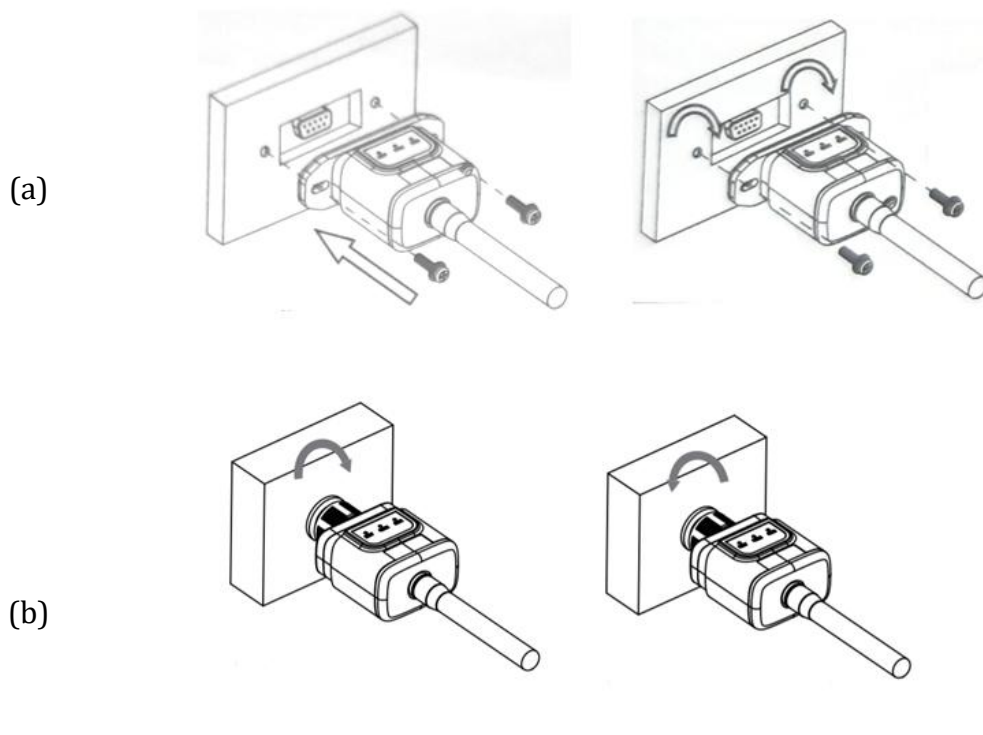
Unlike the internal Wi-Fi card, the external adapter must be installed for all compatible inverters. However, the procedure is quicker and easier as there is no need to open the front cover of the inverter.

In order to monitor the inverter, the RS485 communication address must be set to 01 directly from the display.

- Cross screwdriver
 - External Wi-Fi adapter
- 1) Switch off the inverter following the procedure described in this manual.
 - 2) Remove the cover for accessing the Wi-Fi connector on the bottom of the inverter by unscrewing the two cross-head screws (a), or by unscrewing the cover (b), as shown in the figure.



- 3) Connect the Wi-Fi adapter to the appropriate port, making sure to follow the direction of the connection and ensure correct contact between the two parts.



- 4) Switch on the inverter by following the procedure described in the manual.

Configuration of the Wi-Fi adapter requires the presence of a Wi-Fi network near the inverter in order to achieve stable transmission of data from the inverter adapter to the Wi-Fi modem.

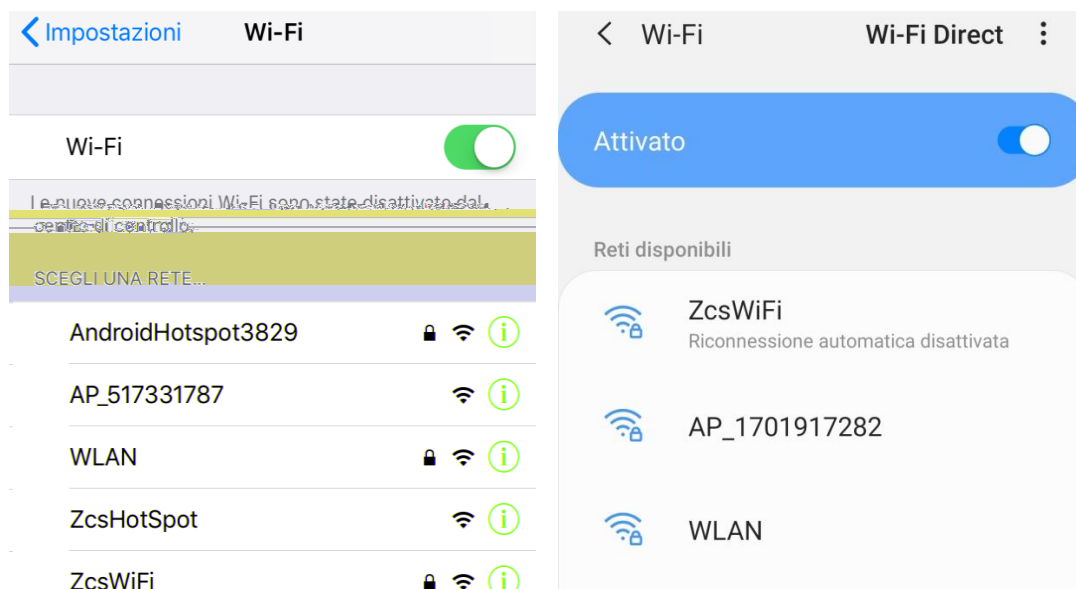
- Smartphone, PC or tablet

Go to front of the inverter and search for the Wi-Fi network using a smartphone, PC or tablet, making sure that the signal from the home Wi-Fi network reaches the place where the inverter is installed.

If the Wi-Fi signal is present at the location where the inverter is installed, the configuration procedure can begin.

If the Wi-Fi signal does not reach the inverter, a system must be installed to amplify the signal and bring it to the installation location.

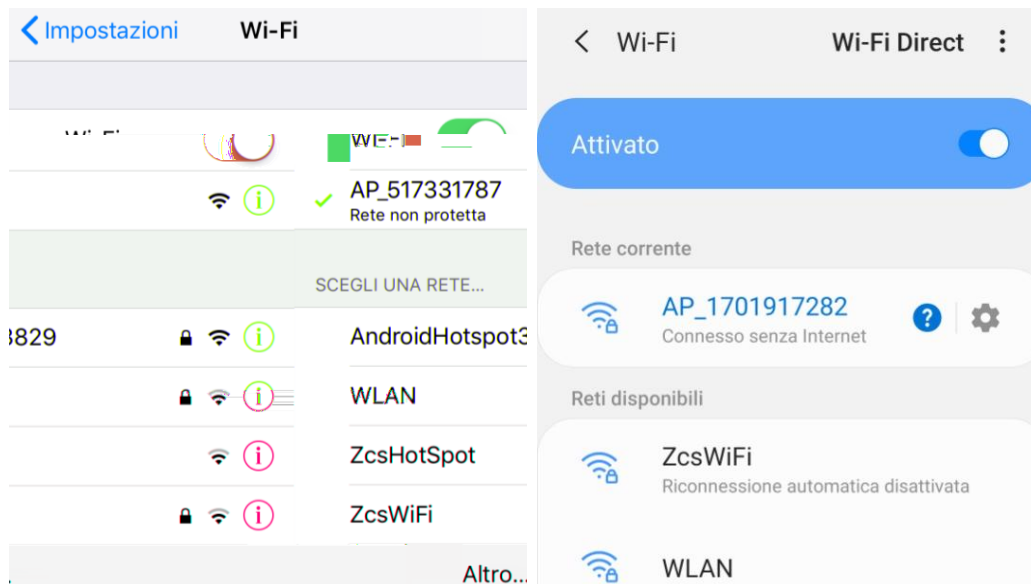
- 1) Activate the search for the Wi-Fi networks on your telephone or PC so that all the networks visible by your device are displayed.



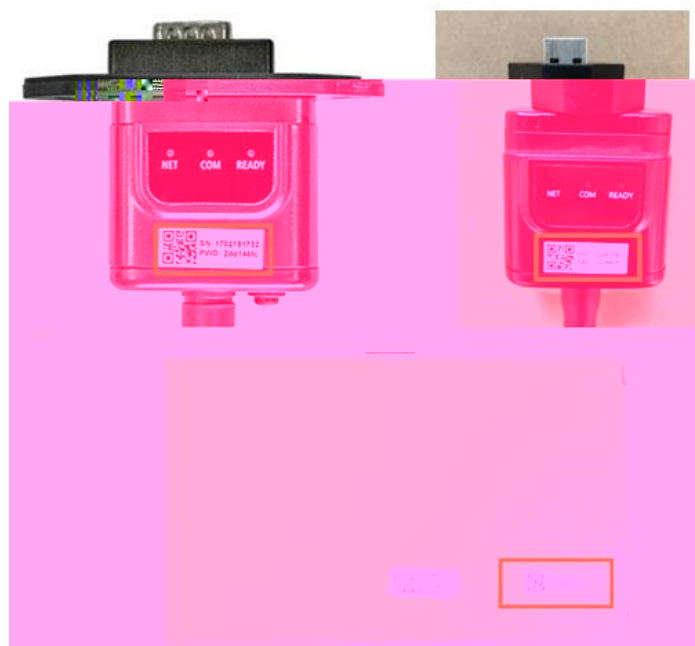
Note: Disconnect from any Wi-Fi networks to which you are connected by removing automatic access.



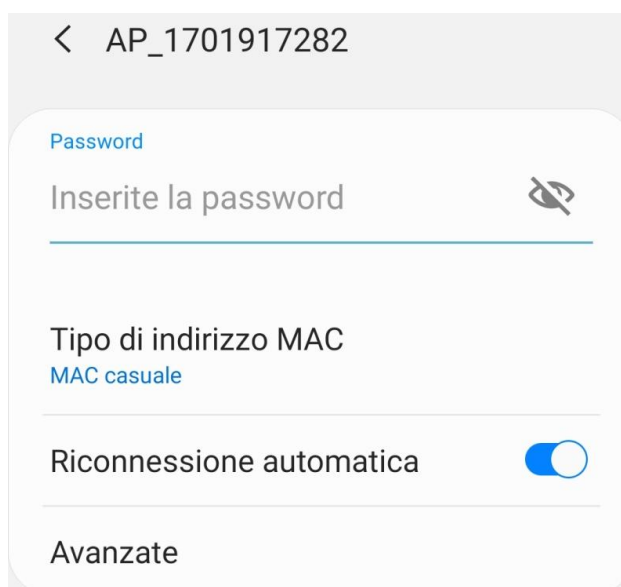
- 2) Connect to a Wi-Fi network generated by the inverter's Wi-Fi adapter (i.e. AP_*****, where ***** indicates the serial number of the Wi-Fi adapter shown on the label of the device), which operates as an access point.



- 3) If you are using a second-generation Wi-Fi adapter, you will be prompted for a password to connect to the inverter's Wi-Fi network. Use the password found on the box or on the Wi-Fi adapter.



Note: To ensure that the adapter is connected to the PC or smartphone during the configuration procedure, enable automatic reconnection of the AP_***** network.

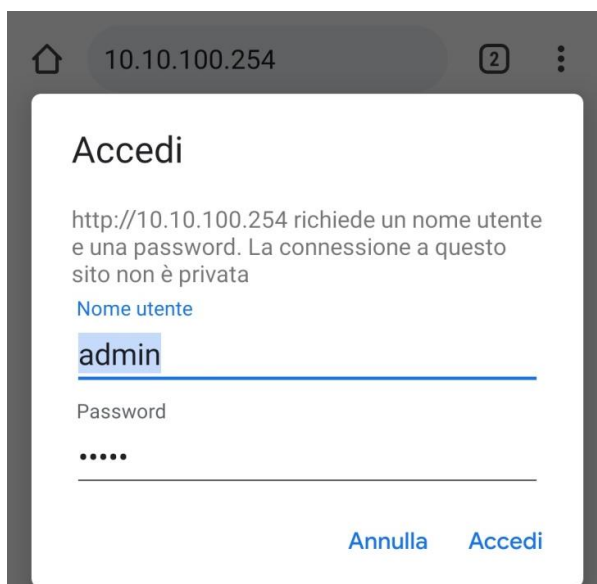


Note: the Access Point is not able to provide internet access; confirm to maintain the Wi-Fi connection, even if the internet is not available



- 4) Open a browser (Google Chrome, Safari, Firefox) and enter the IP address 10.10.100.254 in the address bar at the top of the screen.

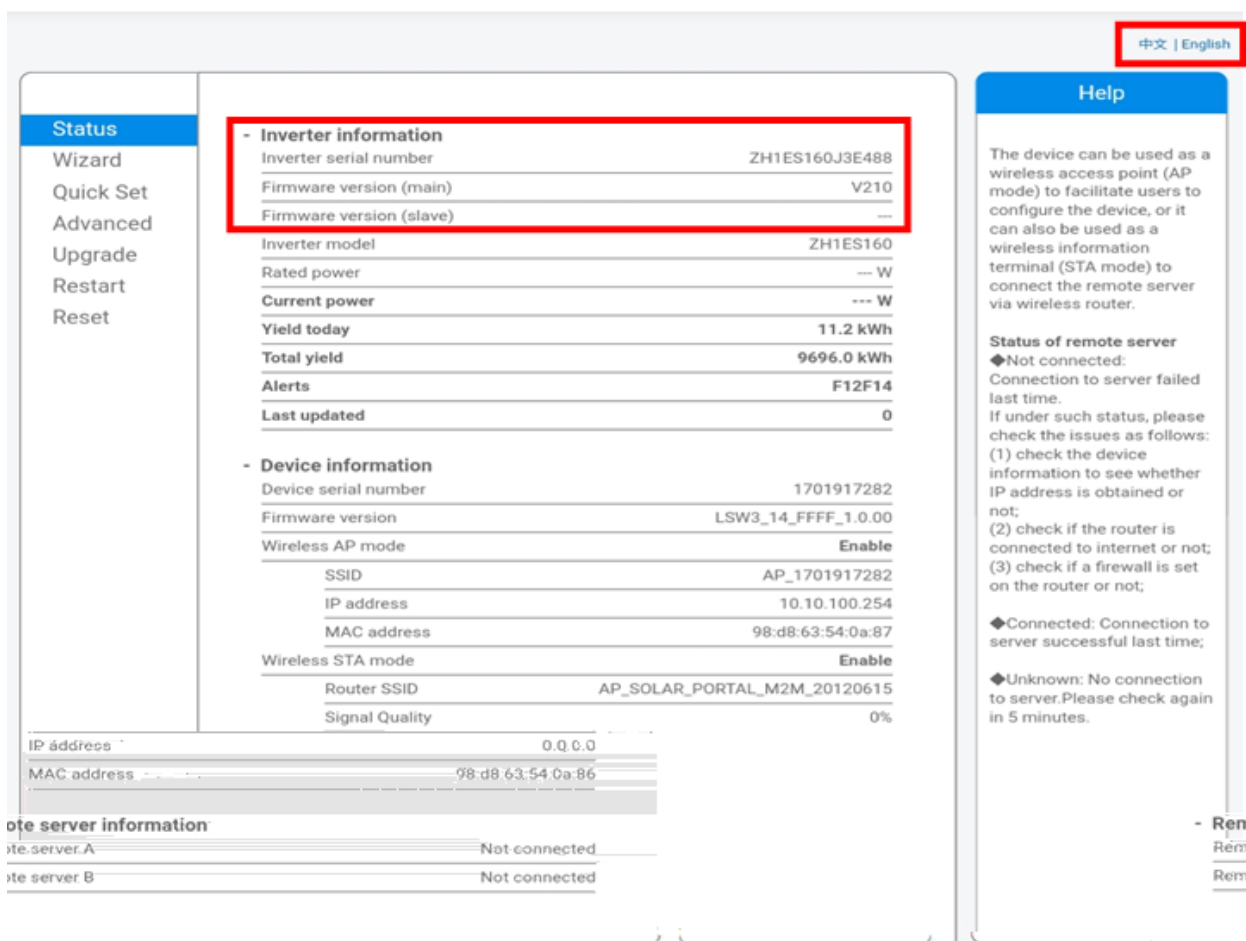
if c i b b f b f f be b c i i f Vsername and Password.



- 5) The status screen will open, showing the logger information such as the serial number and firmware version.

Check that the Inverter Information fields are filled in with the inverter information.

The language of the page can be changed using the command in the top right-hand corner.



中文 | English

Status	
Wizard	
Quick Set	
Advanced	
Upgrade	
Restart	
Reset	

- Inverter information	
Inverter serial number	ZH1ES160J3E488
Firmware version (main)	V210
Firmware version (slave)	---
Inverter model	ZH1ES160
Rated power	--- W
Current power	--- W
Yield today	11.2 kWh
Total yield	9696.0 kWh
Alerts	F12F14
Last updated	0

- Device information	
Device serial number	1701917282
Firmware version	LSW3_14_FFFF_1.0.00
Wireless AP mode	Enable
SSID	AP_1701917282
IP address	10.10.100.254
MAC address	98:d8:63:54:0a:87
Wireless STA mode	Enable
Router SSID	AP_SOLAR_PORTAL_M2M_20120615
Signal Quality	0%

Remote server information	
Remote server A	Not connected
Remote server B	Not connected

IP address: 0.0.0.0
MAC address: 98:d8:63:54:0a:86

Help

The device can be used as a wireless access point (AP mode) to facilitate users to configure the device, or it can also be used as a wireless information terminal (STA mode) to connect the remote server via wireless router.

Status of remote server

- ◆ Not connected: Connection to server failed last time. If under such status, please check the issues as follows: (1) check the device information to see whether IP address is obtained or not; (2) check if the router is connected to internet or not; (3) check if a firewall is set on the router or not;
- ◆ Connected: Connection to server successful last time;
- ◆ Unknown: No connection to server. Please check again in 5 minutes.

- Remote server A
- Remote server B

- 6) Click on the Wizard setup button in the left-hand column.

- 7) In the new screen that opens, select the Wi-Fi network to which you want to connect the Wi-Fi adapter, making sure that the Received Signal Strength Indicator (RSSI) is greater than 30%. If the network is not visible, press the Refresh button.

Note: check that the signal strength is greater than 30%, if not, bring the router closer or install a repeater or signal amplifier.
 Click Next.

Please select your current wireless network:

Site Survey

SSID	BSSID	RSSI	Channel
<input checked="" type="radio"/> iPhone di Giacomo	EE:25:EF:6C:31:18	100	6
<input type="radio"/> ZcsWiFi	FE:EC:DA:1D:C3:9	86	1
<input type="radio"/> ZcsHotSpot	FC:EC:DA:1D:C3:9	86	1
<input type="radio"/> WLAN	E:EC:DA:1D:C3:9	86	1
<input type="radio"/> ZcsHotSpot	FC:EC:DA:1D:C8:A3	57	11
<input type="radio"/> WLAN	E:EC:DA:1D:C8:A3	57	11
<input type="radio"/> ZcsWiFi	FE:EC:DA:1D:C8:A3	54	11
<input type="radio"/> WLAN	E:EC:DA:1D:C8:8B	45	1
<input type="radio"/> ZcsWiFi	FE:EC:DA:1D:C8:8B	37	1
<input type="radio"/> ZcsHotSpot	FC:EC:DA:1D:C8:8B	35	1

★Note: When RSSI of the selected WiFi network is lower than 15%, the connection may be unstable, please select other available network or shorten the distance between the device and router.

Add wireless network manually:

Network name (SSID)
 (Note: case sensitive)

Encryption method

Encryption algorithm

1
2
3
4

- 8) Enter the password of the Wi-Fi network (Wi-Fi modem), clicking on Show Password to make sure it is correct; the password should not contain special characters (&, #, %) and spaces.
 Note: During this step, the system is not able to ensure that the password entered is the one actually requested by the modem, therefore please make sure you enter the correct password.
 Also check that the box below is set to Enable.

U i f d d O f b e b b g f d e g f g d b

Please fill in the following information:

Password (8-64 bytes)
(Note: case sensitive)

☐ Show Password

Obtain an IP address automatically

IP address

Subnet mask

Gateway address

DNS server address

1 2 3 4

9) Do not forget to check any of the options relating to the system security.

Enhance Security

You can enhance your system security by choosing the following methods

- [Hide AP](#) ☐
- [Change the encryption mode for AP](#) ☐
- [Change the user name and password for Web server](#) ☐

1 2 3 4

10) D d PL

Setting complete!

Click OK, the settings will take effect and the system will restart immediately.

If you leave this interface without clicking OK, the settings will be ineffective.

Back OK

1
2
3
4

- 11) At this point, if the configuration of the adapter is successful, the last configuration screen will be displayed.
- 12) Manually close the web page with the Close key on the PC or remove it from the background of the telephone.



If the Wi-Fi network is still present in the list, connect to it again and enter the status page. Check the following information:

- a. Wireless STA mode
 - i. Router SSID > Router name
 - ii. Signal Quality > other than 0%
 - iii. IP address > other than 0.0.0.0
- b. Remote server information
 - i. Remote server A > Connected



Wireless STA mode		Enable
Router SSID	iPhone di Giacomo	
Signal Quality	0%	
IP address	0.0.0.0	
54:0a:86	MAC address	98:d8:53:
- Remote server information		
Disconnected	Remote server A	Not connected

1) Initial status:

NET (left LED): off

COM (central LED): steady on

READY (right LED): flashing on



2) Final status:

NET (left LED): steady on

COM (central LED): steady on

READY (right LED): flashing on



g i f OFU MFE e f hi g i f Sf f Tf f B i f Tb bhf i O
D fdfe if d gh b b ddf g f i f h f b e b f f fe i f
device was disconnected during connection.

It is necessary to reset the adapter:

- Press the Reset button for 10 seconds and release
- After a few seconds, the LEDs will turn off and READY will start to flash quickly
- The adapter has now returned to its initial state. At this point, the configuration procedure can be repeated again.

The adapter can only be reset when the inverter is switched on.



1) Irregular communication with inverter

NET (left LED): steady on
 COM (central LED): off
 READY (right LED): flashing on



Check the Modbus address set on the inverter:
 Enter the main menu with the ESC key (first key on the left), go to System Info and press ENTER to enter the submenu. Scroll down to the Modbus address parameter and make sure it is set to 01 (and in any case, other than 00).

g i f b f h Tf h cbsic settings for hybrid inverters) and enter the Modbus Address menu where the 01 value can be set.

Check that the Wi-Fi adapter is correctly and securely connected to the inverter, making sure to tighten the two cross-head screws provided.

Check that the Wi-Fi symbol is present in the top right-hand corner of the inverter's display (steady or flashing).



Restart the adapter:

- Press the reset button for 5 seconds and release
- After a few seconds, the LEDs will turn off and will start to flash quickly
- The adapter will now be reset without having lost the configuration with the router

2) Irregular communication with remote server

- NET (left LED): off
- COM (central LED): on
- READY (right LED): flashing on



- Check that the configuration procedure has been carried out correctly and that the correct network password has been entered.
- When searching for the Wi-Fi network using a smartphone or PC, make sure that the Wi-Fi signal is strong enough (a minimum RSSI signal strength of 30% is required during configuration). If necessary, increase it by using a network extender or a router dedicated to inverter monitoring.
- Check that the router has access to the network and that the connection is stable; check that a PC or smartphone can access the Internet
- Check that port 80 of the router is open and enabled to send data
- Reset the adapter as described in the previous section

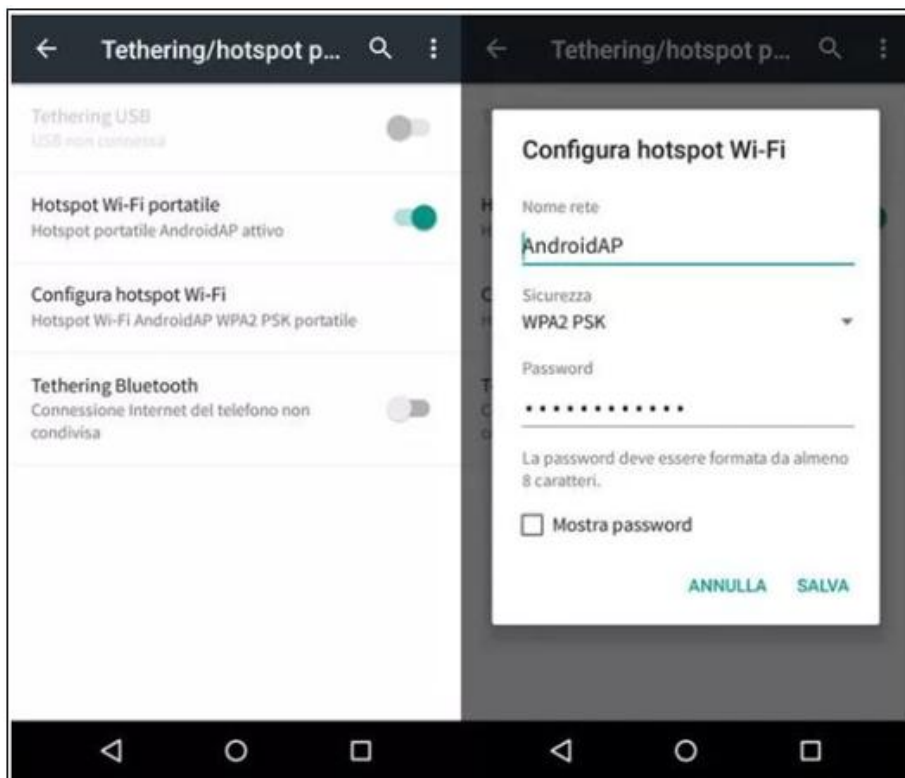
g b i f f e g i f f d i f d b e c f f d g h b S f f f f B O
 D f d f e i f O F U M F E off, there may be a transmission problem at the home network level and, more specifically, that data between the router and server is not being transmitted correctly. In this case, it is advisable to carry out checks at the router level in order to ensure that there are no obstructions on the output of data packets to our server.

To make sure that the problem lies in the home router and to exclude problems with the Wi-Fi adapter, configure the adapter using the Wi-Fi hotspot function on your smartphone as a reference wireless network.

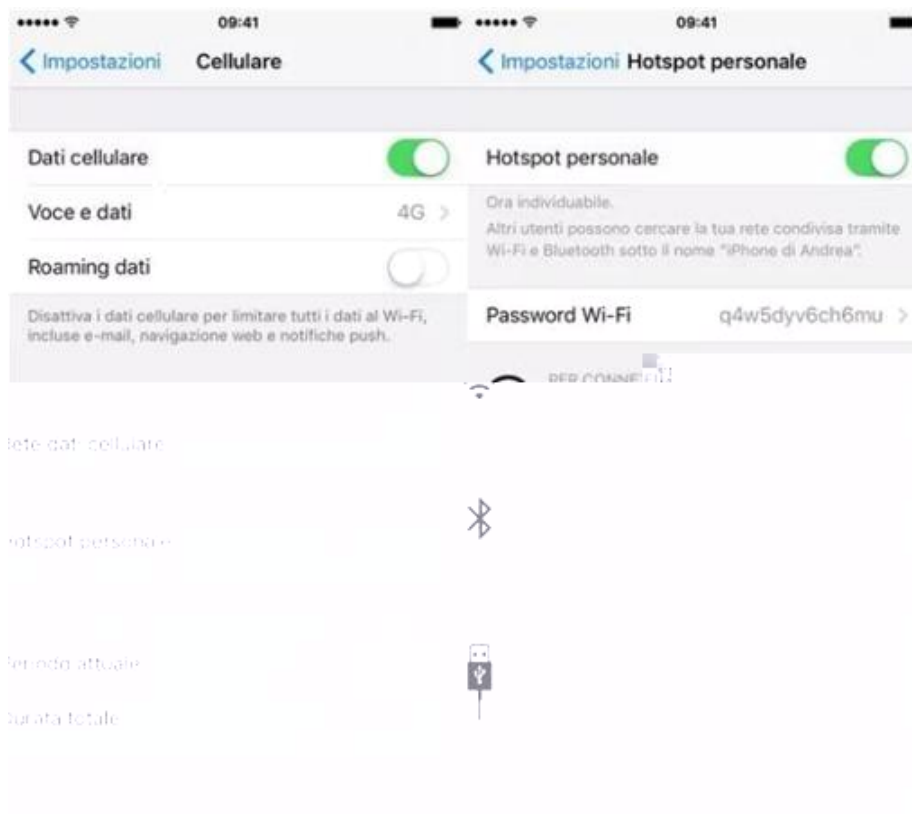
- a) Check that the 3G/LTE connection is active on your smartphone. Go to the Settings menu of the operating system (the gear icon on the screen with a list of all the apps installed on the phone),

fffd Pif g if ff be f f be bf fib ifOf f f
to 3G/4G/5G.

- b) In the Android settings menu, go to Wireless & networks > Other. Select Mobile Hotspot/Tethering, and then enable the Wi-Fi mobile hotspot option; wait a few seconds for the wireless network to be created. To change the name of the wireless network (SSID) or your password, select Configure Wi-Fi hotspot.



- a) In order to share the iPhone connection, verify that the 3G/LTE network is active by going to Tf h N c f Qi f b e b h f i b i f W d f b e e b b f H H H
To enter the iOS settings menu, click the grey gear icon on the home screen of your phone.
- b) Go to the Settings menu > Personal Hotspot and turn on the Personal Hotspot option. The hotspot is now enabled. To change the password of the Wi-Fi network, select Wi-Fi password from the personal hotspot menu.



At this point, it is necessary to re-configure the Wi-Fi adapter using a PC or smartphone other than the one used as a modem.

During this procedure, when asked to select the Wi-Fi network, choose the one activated by the smartphone and then enter the password associated with it (which can be changed from the f b i f h g b i f f e g d g h b D f d f e b f b f S f f T f f B i f i f c f with the home router).

It is therefore advisable to check the brand and model of the home router you are trying to connect to the Wi-Fi adapter; some router brands may have closed communication ports. In this case, contact the customer service of the route b g d f b e b i f f e f d g i f network to external users).

Installation must be carried out for all inverters compatible with the adapter. However, the procedure is quicker and easier as there is no need to open the front cover of the inverter. Proper operation of the device requires the presence of a modem correctly connected to the network and in operation in order to achieve stable data transmission from the inverter to the server.

In order to monitor the inverter, the RS485 communication address must be set to 01 directly from the display.

- Cross screwdriver
 - Ethernet adapter
 - Shielded network (Cat. 5 or Cat. 6) crimped with RJ45 connectors
- 1) Switch off the inverter following the procedure described in this manual.
 - 2) Remove the cover for accessing the Wi-Fi/Eth connector on the bottom of the inverter by unscrewing the two cross-head screws (a), or by unscrewing the cover (b), depending on the inverter model, as shown in the figure.

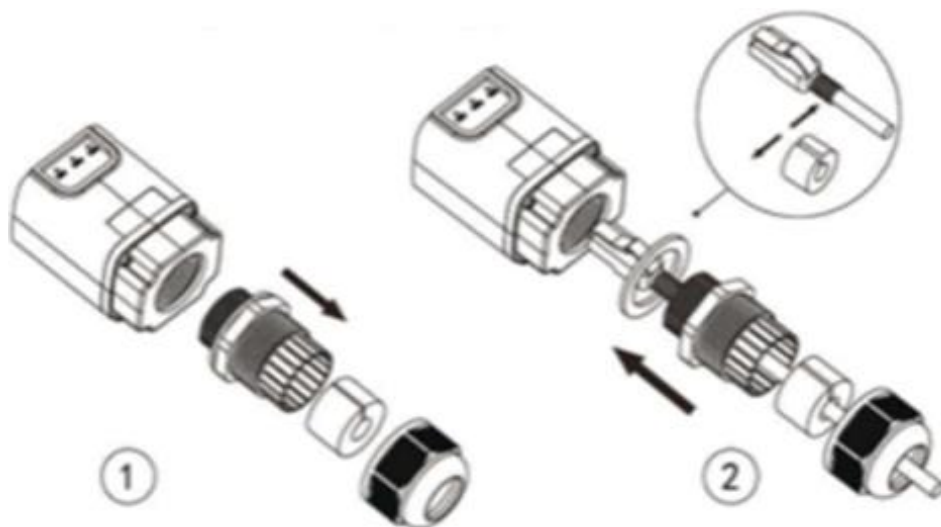
(a)



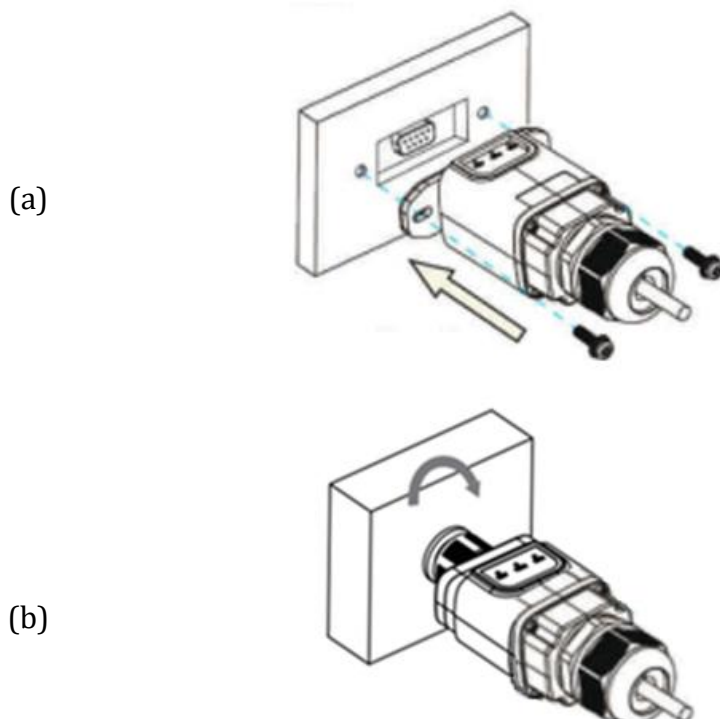
(b)



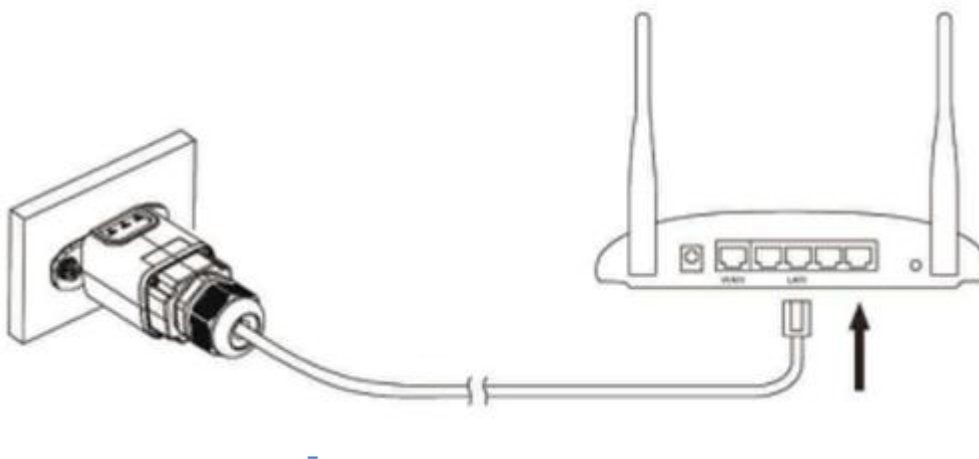
- 3) Remove the ring nut and the waterproof cable gland from the adapter to allow the network cable to pass through; then insert the network cable network into the appropriate port on the inside of the adapter and tighten the ring nut and cable gland to ensure a stable connection.



- 4) Connect the Ethernet adapter to the appropriate port, making sure to follow the direction of the connection and ensure correct contact between the two parts.



- 5) Connect the other end of the network cable to the ETH output (or equivalent) of the modem or a suitable data transmission device.



- 6) Switch on the inverter by following the procedure described in the manual.
- 7) Unlike Wi-Fi cards, the Ethernet adapter does not need to be configured and starts transmitting data shortly after the inverter is switched on.

Wait two minutes after installing the adapter, and check the status of the LEDs on the device.

- 1) Initial status:
 - NET (left LED): off
 - COM (central LED): steady on
 - SER (right LED): flashing on



- 2) Final status:
- NET (left LED): steady on
 - COM (central LED): steady on
 - SER (right LED): flashing on



1) Irregular communication with inverter

- NET (left LED): steady on
- COM (central LED): off
- SER (right LED): flashing on



- Check the Modbus address set on the inverter:
 Enter the main menu with the ESC key (first key on the left), go to System Info and press ENTER to enter the submenu. Scroll down to the Modbus address parameter and make sure it is set to 01 (and in any case, other than 00).
 If the value is `h Tf h c b d f h g i c e f f b e f f i f N e c`
 Address menu where the 01 value can be set.
- Check that the Ethernet adapter is correctly and securely connected to the inverter, making sure to tighten the two cross-head screws provided. Check that the network cable is correctly inserted into the device and modem, and that the RJ45 connector is correctly crimped.

2) Irregular communication with remote server

- NET (left LED): off
- COM (central LED): on
- SER (right LED): flashing on



- Check that the router has access to the network and that the connection is stable; check that a PC can access the Internet

Check that port 80 of the router is open and enabled to send data.

It is advisable to check the brand and model of the home router you are trying to connect to the Ethernet adapter; some router brands may have closed communication ports. In this case, contact the customer service of the router brand (if the router is not configured correctly, contact the network to external users).

The ZCS 4G adapters are sold with a virtual SIM integrated into the device with data traffic fee included for 10 years, which is adequate for the proper transmission of data to monitor the inverter.

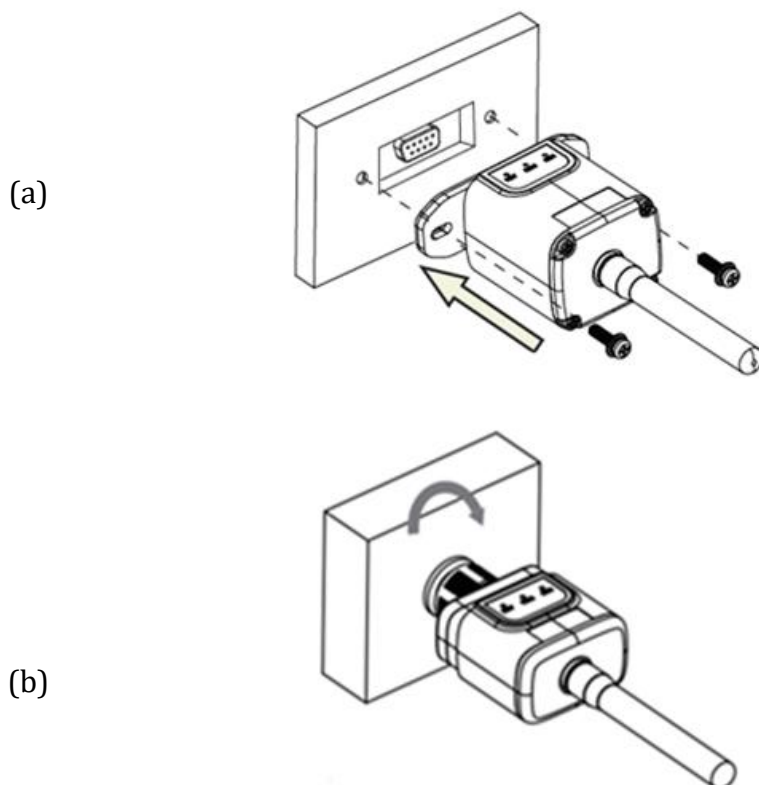
In order to monitor the inverter, the RS485 communication address must be set to 01 directly from the display.

Installation must be carried out for all inverters compatible with the adapter. However, the procedure is quicker and easier as there is no need to open the front cover of the inverter.

- Cross screwdriver
 - 4G adapter
- 1) Switch off the inverter following the procedure described in this manual.
 - 2) Remove the cover for accessing the Wi-Fi/ GPRS connector on the bottom of the inverter by unscrewing the two cross-head screws (a), or by unscrewing the cover (b), depending on the inverter model, as shown in the figure.



- 3) Insert the 4G adapter into the appropriate port, making sure to follow the direction of the connection and ensure correct contact between the two parts. Secure the 4G adapter by tightening the two screws inside the package.



- 4) Switch on the inverter by following the procedure described in the manual.
- 5) Unlike Wi-Fi cards, the 4G adapter does not need to be configured and starts transmitting data shortly after the inverter is switched on.

After installing the adapter, within the next 3 minutes check the status of the LEDs on the device to ensure that the device is configured correctly.

1) Initial status:

- NET (left LED): off
- COM (central LED): flashing on
- SER (right LED): flashing on



2) Registration:

- NET (left LED): flashes rapidly for about 50 seconds; the registration process takes about 30 seconds
- COM (central LED): flashes rapidly 3 times after 50 seconds

3) Final status (approx. 150 seconds after the inverter has started):

- NET (left LED): flashing on (off and on at equal intervals)
- COM (central LED): steady on
- SER (right LED): steady on



1) Irregular communication with inverter

NET (left LED): on
COM (central LED): off
SER (right LED): on



Check the Modbus address set on the inverter:

Enter the main menu with the ESC key (first key on the left), go to System Info and press ENTER to enter the submenu. Scroll down to the Modbus address parameter and make sure it is set to 01 (and in any case, other than 00).

g i f b f h T f h c b d f h g i c e f f b e f f i f
Modbus Address menu where the 01 value can be set.

Check that the 4G adapter is correctly and securely connected to the inverter, making sure to tighten the two cross-head screws provided.

2) Irregular communication with remote server:

- NET (left LED): flashing on
- COM (central LED): on
- SER (right LED): flashing on



- Check that the 4G signal is present in the installation location (the adapter uses the Vodafone network for 4G transmission; if this network is not present or the signal is weak, the SIM will use a different network or will limit the data transmission speed). Ensure that the installation location is suitable for 4G signal transmission and that there are no obstacles that could affect data transmission.
- Check the status of the 4G adapter and that there are no external signs of wear or damage.

U f i f b b Uf b e D e g f f e c DTB
inside the product box and on the website www.zcsazzurro.com.

f b f f g f i f e d f b