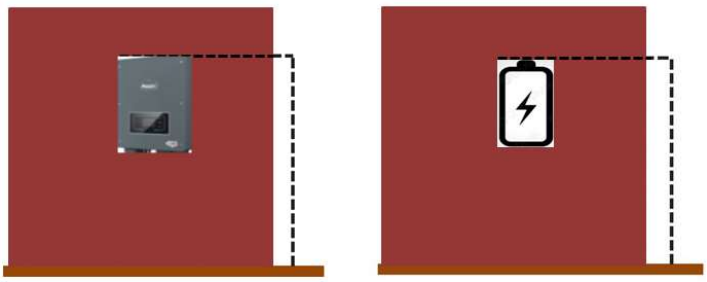
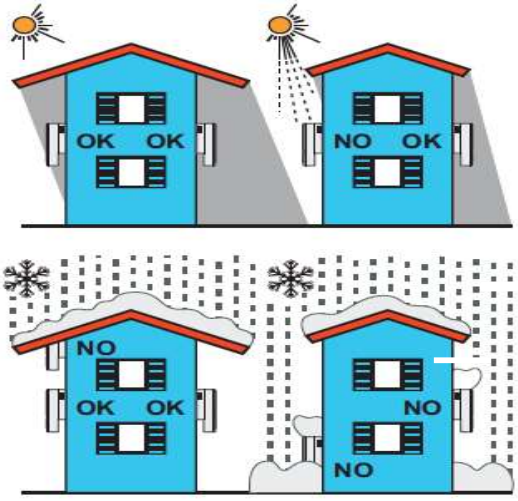
QUICK INSTALLATION GUIDE - 3000SP STORAGE SYSTEM

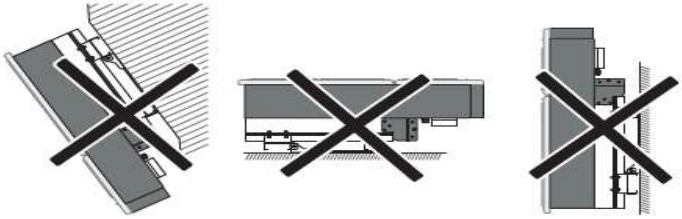
1. INSTALLATION AND DISTANCES

Always wear protective clothing and/or personal protective equipment	Always consult the manual	General notice - Important Safety Instructions

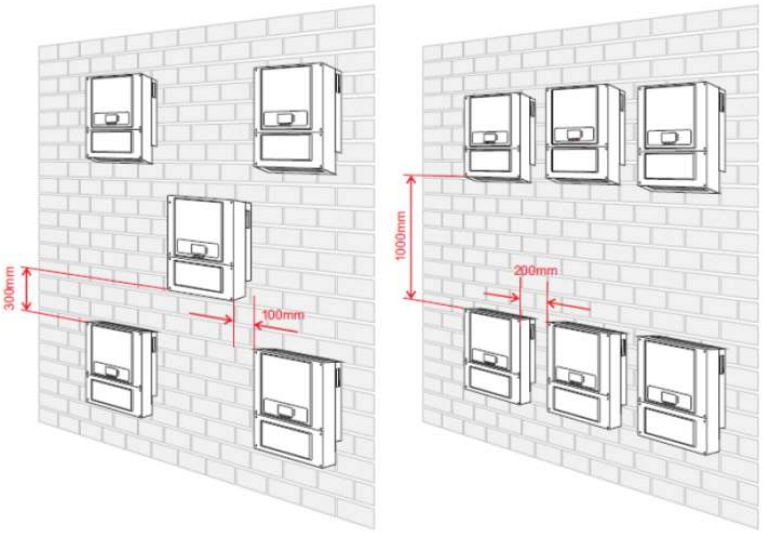
Maximum height from ground permitted: 180 cm





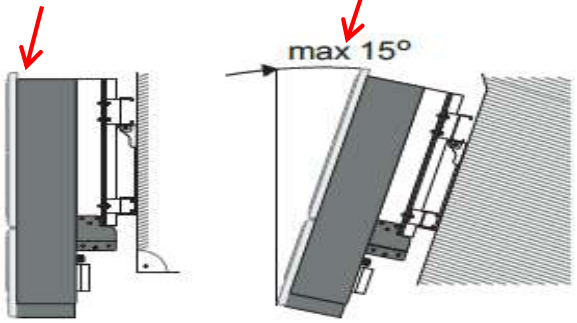


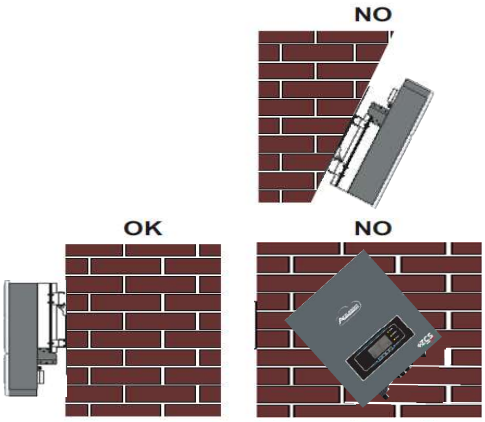
Distances for installing multiple inverters



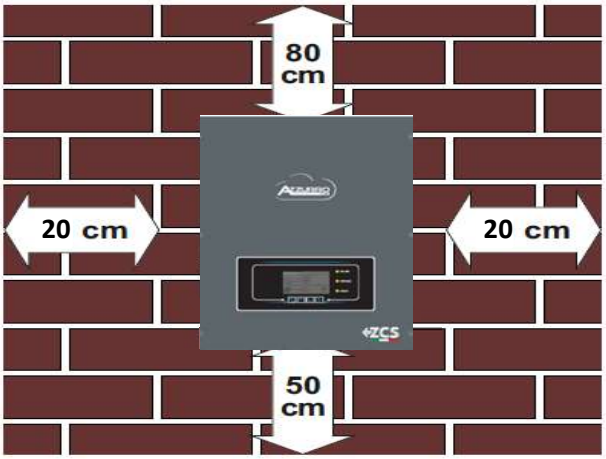
Correct installation in vertical position

Maximum inclination permitted: 15°

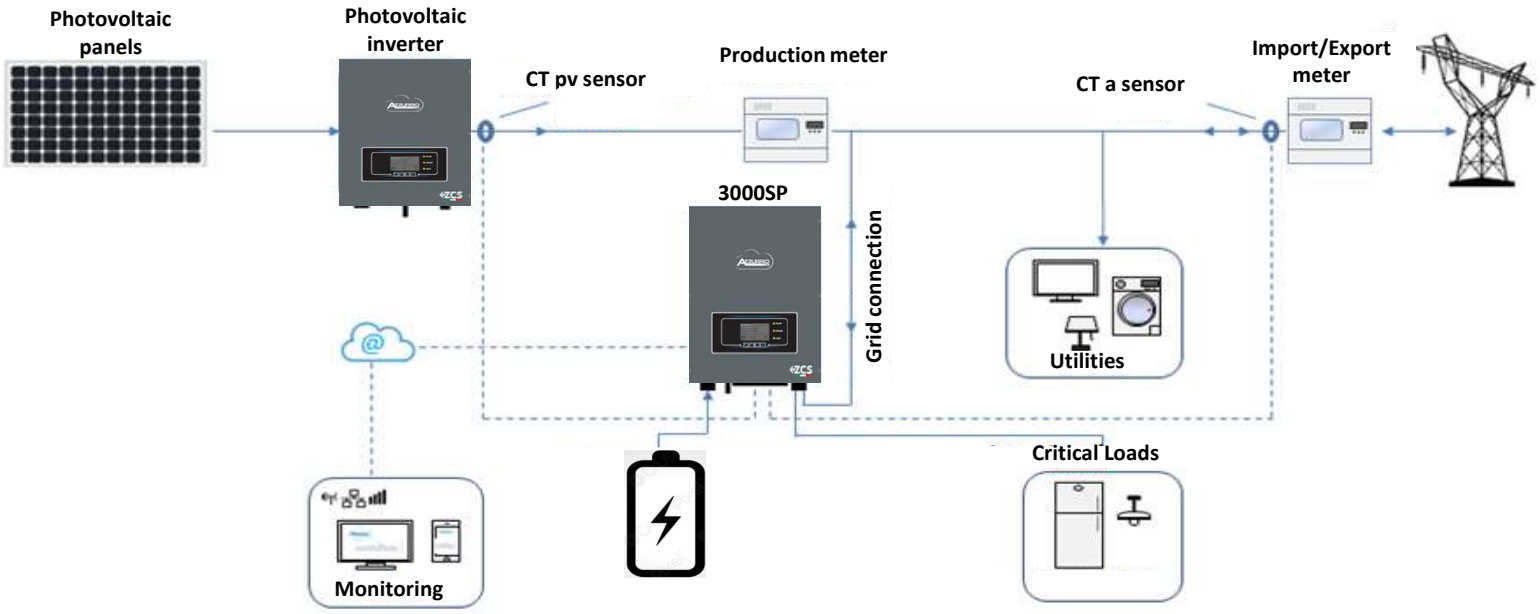




Distances for installing a single inverter

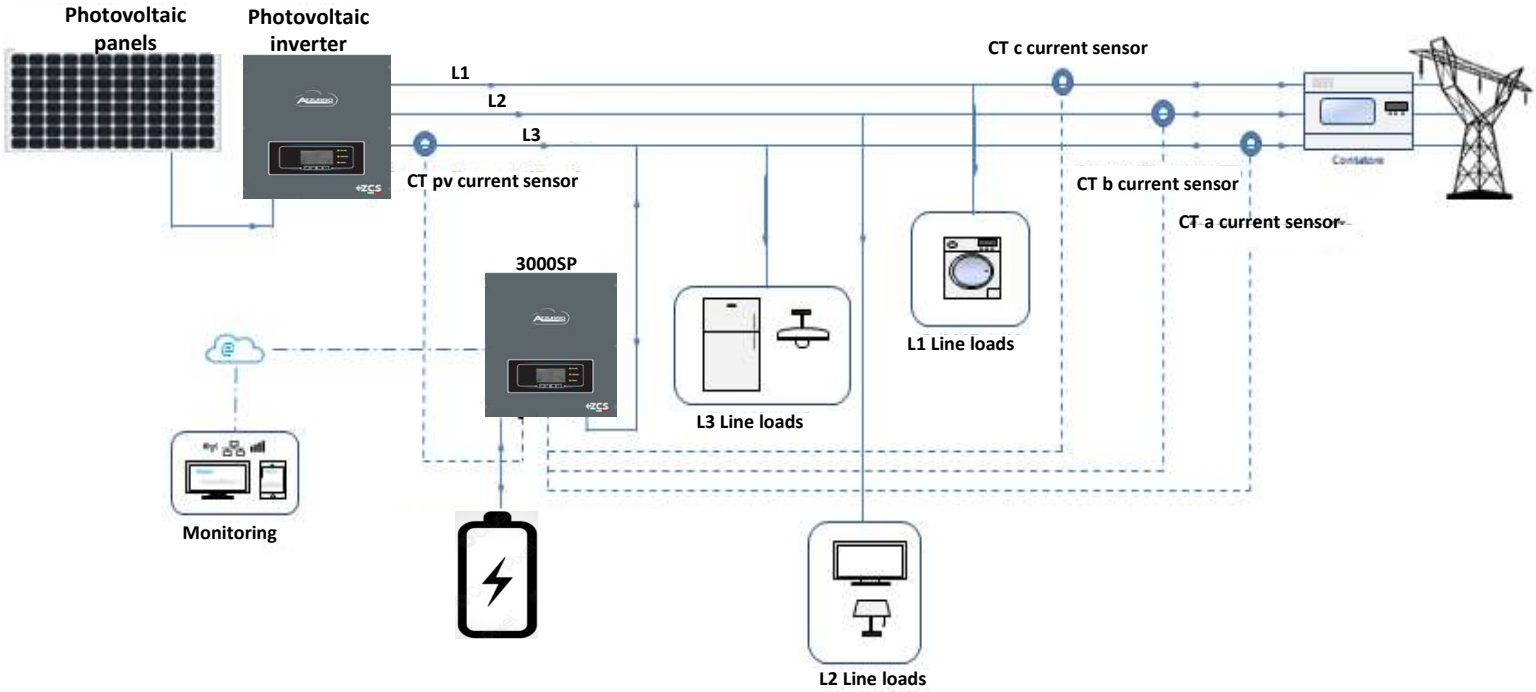


2.1 WIRING DIAGRAM FOR 3000SP SINGLE-PHASE STORAGE SYSTEM



The wiring diagram for the 3000SP single-phase storage system is shown above.
For instructions on this installation mode, refer to all pages of this guide, except pages 16 to 22 (inclusive).

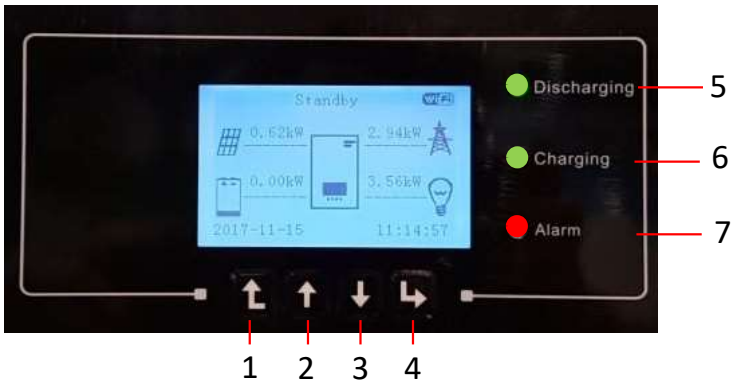
2.2 WIRING DIAGRAM FOR 3000SP THREE-PHASE STORAGE SYSTEM

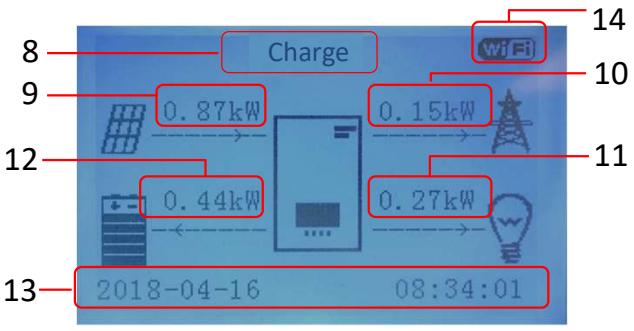


The wiring diagram for the 3000SP three-phase storage system is shown above.
For instructions on this installation mode, refer to all pages of this guide, except pages 10 to 15 (inclusive).

Note: If the 3000SP storage system is to be installed under different conditions from those shown in the diagrams above, contact Technical Support to check whether it is feasible.

3. LIGHTS AND BUTTONS





1. Menu/back	8. System status
2. Up	9. PV production
3. Down	10. Grid power
4. Enter/Forward	11. Home consumption
5. Discharge status	12. Battery power
6. Charge status	13. Date and time
7. Alarm status	14. Wi-Fi signal

Operating status	Green charging light	Green charging light	Red alarm light
Discharge	Steady		
Discharging control	Intermittent		
Charge		Steady	
Charging control		Intermittent	
Standby	Intermittent	Intermittent	
EPS status	Steady	Steady	
Alarm			Steady

4. MAIN MENU

From the main screen, press "Menu/Back" to enter the main menu.
The main menu contains five different options:

Main menu
1. Settings
2. Event list
3. System Info
4. Software Update
5. Energy statistics

1.Settings

1.Battery Parameters	9.EPS Mode
2.Delete Energy Data	10.DRMs0 Control
3.Clear events	11.Self-test
4.Set Country	12.Working Mode
5.Commun.Address Select.	13.CTpv Scale Factor
6.Enable Country Change	14.CT Direction
7.Language	13.Set parameters Safety
8.Date and time	

2. Event list

1. List of current events
2. List of historical events

3. System Info

System info (1)	Battery Parameters (1)
System info (2)	Battery Parameters (2)
System info (3)	Battery Parameters (2)

4. SW Update

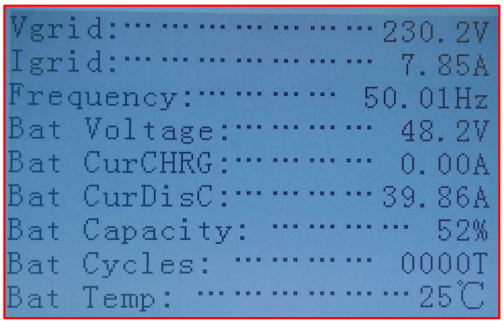
PWD: 0715

Start Update ...

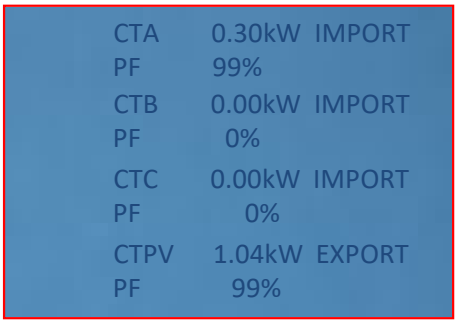
5.Energy Statistics

Today	Week	Month	Year	Life Cycle
PV prod.	PV prod.	PV prod.	PV prod.	PV prod.
AutoCon	AutoCon	AutoCon	AutoCon	AutoCon
Export	Export	Export	Export	Export
Consumption	Consumption	Consumption	Consumption	Consumption
AutoCon	AutoCon	AutoCon	AutoCon	AutoCon
Amount	Amount	Amount	Amount	Amount

5. QUICK INFO ON SYSTEM STATUS

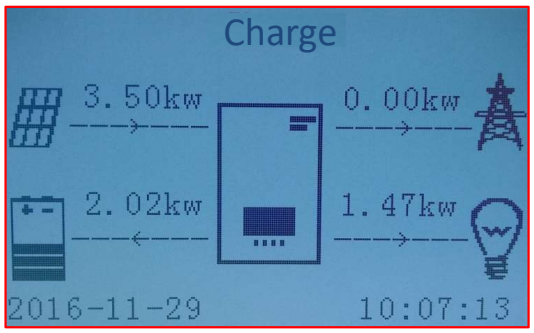


Press the "↓" key once from the main menu to access the instantaneous information on how to operate the 3000SP.
Press the "↓" key a second time to display the power flows on the CTs.

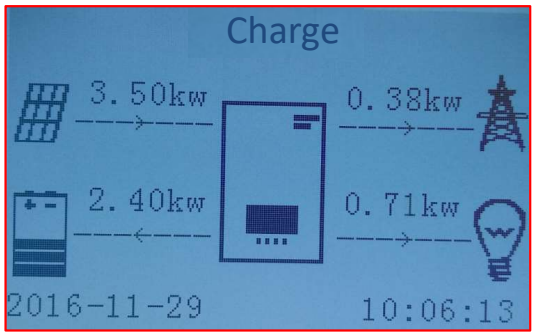


6. OPERATING STATES IN AUTOMATIC MODE

Charge

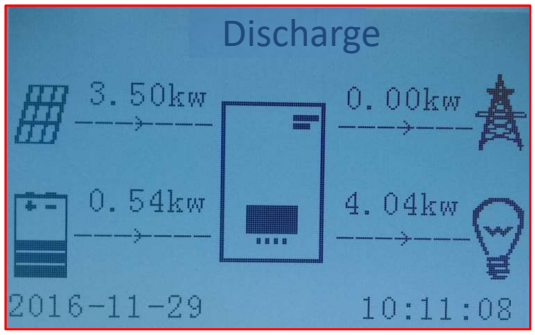


When the power produced from the photovoltaic system is greater than the energy required by the loads, the 3000SP system will charge the battery with the excess energy.

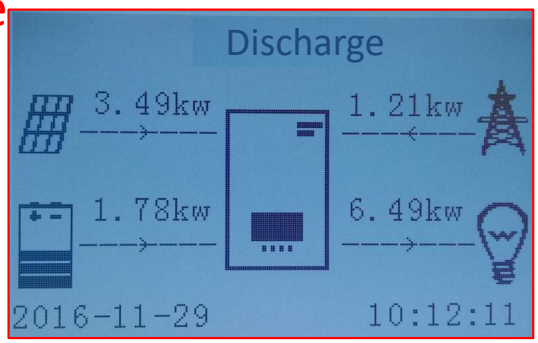


When the battery is fully charged, or when the charging power is limited (to preserve the integrity of the battery), the excess energy will be exported to the grid.

Discharge

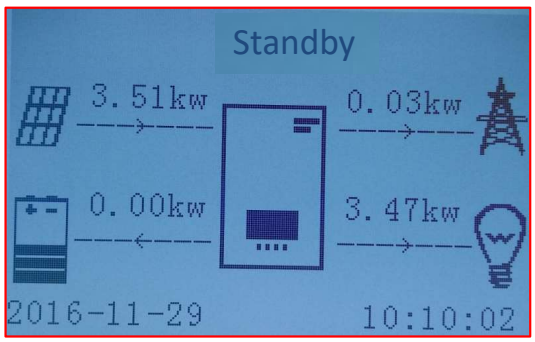


When the power of the photovoltaic system is once again less than the power required by the loads, the system will use the energy stored in the battery to power the domestic utilities.



When the sum of the power produced by the photovoltaic system and supplied by the battery is less than that required by the loads, the missing energy will be taken from the grid.

Standby



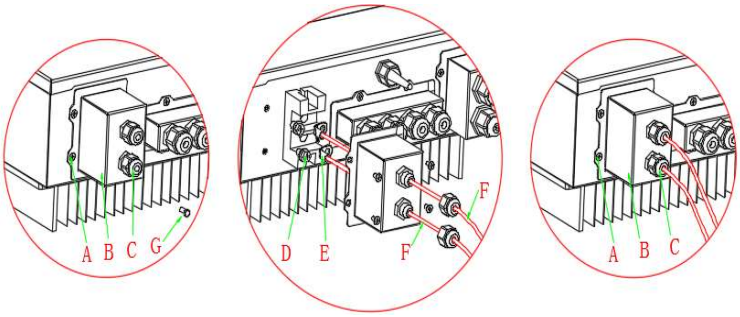
The 3000SP will remain in Standby until:
- the difference between the photovoltaic production and the power required by the load is less than 100W
- the battery is fully charged and the photovoltaic production is higher than the consumption (with tolerance of 100W)
- the battery is flat and the photovoltaic production is lower than the consumption (with tolerance of 100W)

If the storage system has to be switched off, make sure to disconnect the AC voltage first by opening the dedicated switch.
NEVER turn off the batteries while the storage system is connected to the AC mains.
Do not extend the DC cables, and only used those supplied.
Do not use DC circuit breakers.

7. BATTERY CONNECTION

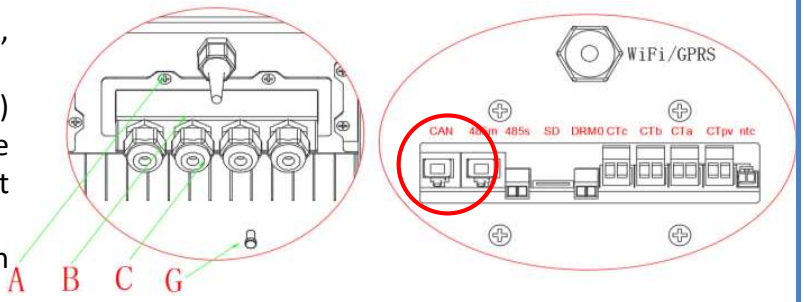
CONNECTING THE POWER CABLES:

1) Unscrew the 4 screws (A) with a screwdriver.
2) Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).
3) Feed the battery cables (F) through the cable gland, then connect them to the positive and negative terminals of the inverter (E).
4) Replace the cover on the inverter and secure it with the four screws; then tighten the cable glands.



CONNECTING THE COMMUNICATION CABLES:

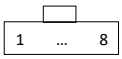
1) Unscrew the 4 screws (A) with a screwdriver.
2) Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).
3) Feed the communication cable (inverter side) through the cable gland on the left side of the cover, then insert the connector into the **CAN** port on the inverter's communication board.
4) Replace the cover on the inverter and secure it with the four screws; then tighten the cable glands.



8.1 SINGLE PYLONTECH BATTERY

Note: Maximum DoD Programmable 80%

Note: The communication cable is located inside the kit in the inverter box.

Communication cable pinout between Pylontech battery & Inverter system, left to right			
Inverter			PIN 1: White orange PIN 2: orange PIN 3: white blue PIN 4: blue
Pylontech			PIN 1: not used PIN 2: not used PIN 3: not used PIN 4: White orange PIN 5: orange PIN 6: not used PIN 7: white blue PIN 8: blue

In case of a single battery, two power cables (positive and negative) and a communication cable will be connected. This connection is shown in the figures below:

The communication cable must be connected to the battery's CAN port

Note: The DIP switch positions must be set according to the factory settings (if modified accidentally, contact technical support)

8.2 PYLONTECH BATTERIES IN PARALLEL

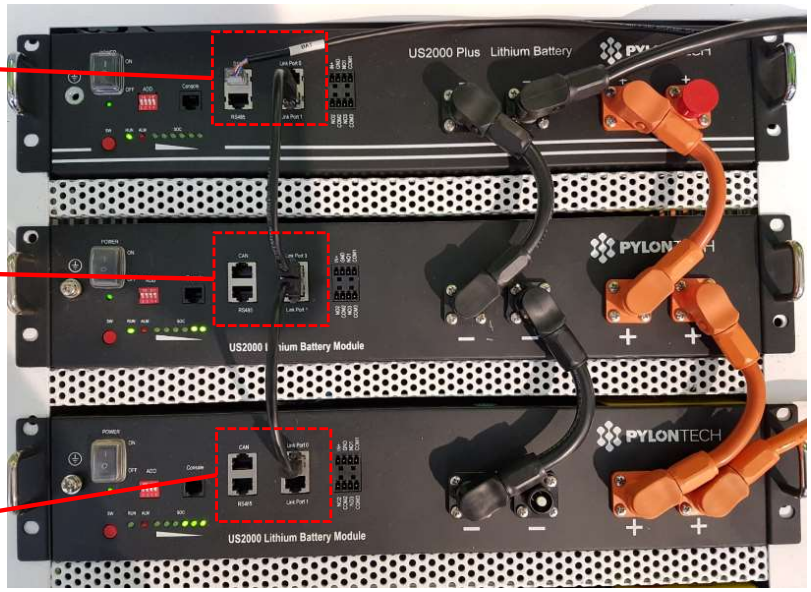
Note: To connect multiple batteries in parallel, use the appropriate cables (power and connection) contained in the kit.

Master

Slave 1

⋮

Slave n



Note: The DIP switch positions must be set according to the factory settings (if modified accidentally, contact technical support)

When connecting multiple batteries in parallel, connect the communication cable previously connected to the inverter's CAN port to the CAN port of one of the batteries. This will be referred to as the MASTER battery.

A communication cable will go from the port 1 link of the MASTER battery to the second battery called SLAVE 1, entering the port 0 link.
In case of additional batteries, the communication cable will be connected as indicated above for the connection of the MASTER battery to SLAVE 1.
The last battery will only
have the port 0 link connected.

The batteries must be connected in a “loop” as shown in the side photo, and explained below:

The power cable connected to the inverter’s negative pole must be connected to the MASTER battery, while the cable connected to the inverter’s positive pole must be connected to the last “SLAVE N” battery.

Inverter negative

Inverter positive

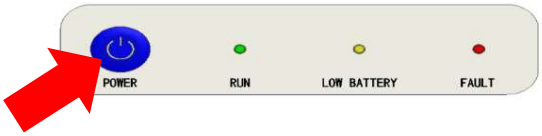
8.3 SINGLE 4K4 WECO BATTERY

Note: Maximum DoD programmable 90%

Note: The communication cables are located inside the kit in the WeCo battery box

Communication cable pinout between Weco battery and Inverter system, from left to right			
Inverter		1 … 4	PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue
WeCo		1 … 8	PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue PIN 5: not used PIN 6: not used PIN 7: not used PIN 8: not used

Note: Turn off the batteries each time the position of the DIP switches is changed.



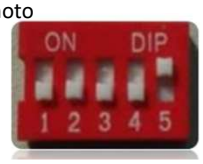
In case of multiple batteries connected in parallel or when adding new batteries to a system with batteries already installed and working, make sure that the difference between the voltages of all the batteries is less than 1 Volt. Each battery must be measured individually, therefore make sure the batteries are not connected to each other. (If the value is higher than 1 Volt, contact Technical Support)

To access the battery connection, remove the cover by unscrewing the crosshead screws.

Inv-Batt communication cable
Positive power cable
Negative power cable
Ground cable (PE)

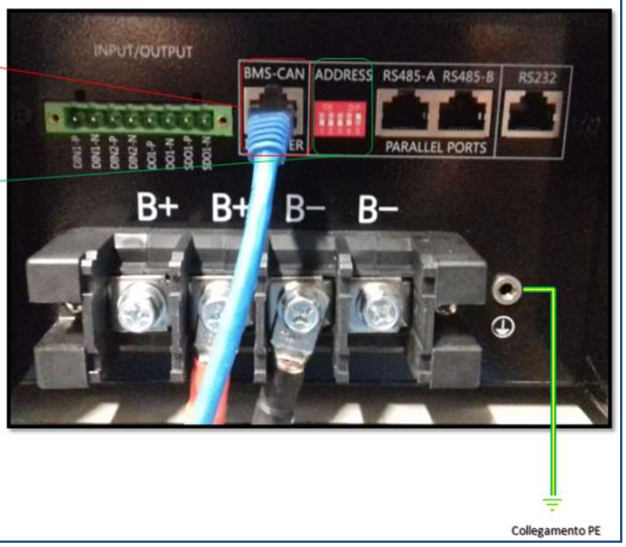
In case of a SINGLE BATTERY:
1. Connect the **BMS-CAN** input

2. Set the DIP switches as shown in the photo



3. The power connections must be made by attaching the appropriate B+ and B- connectors to the corresponding input (as shown in the figure).

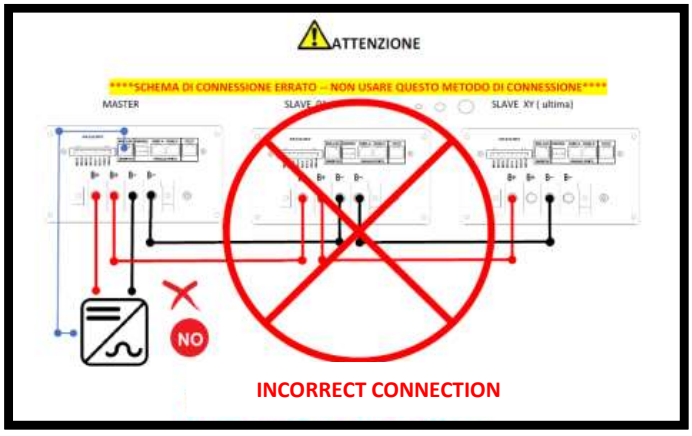
4. Connect the ground cable to the battery through the threaded hole

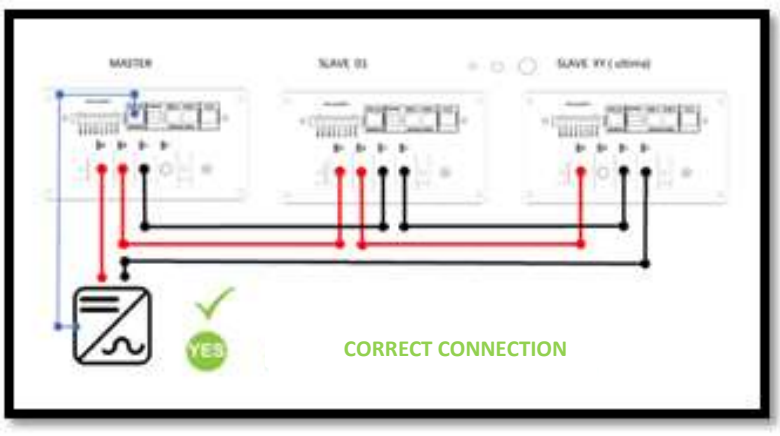


8.4 4K4 WECO BATTERIES IN PARALLEL

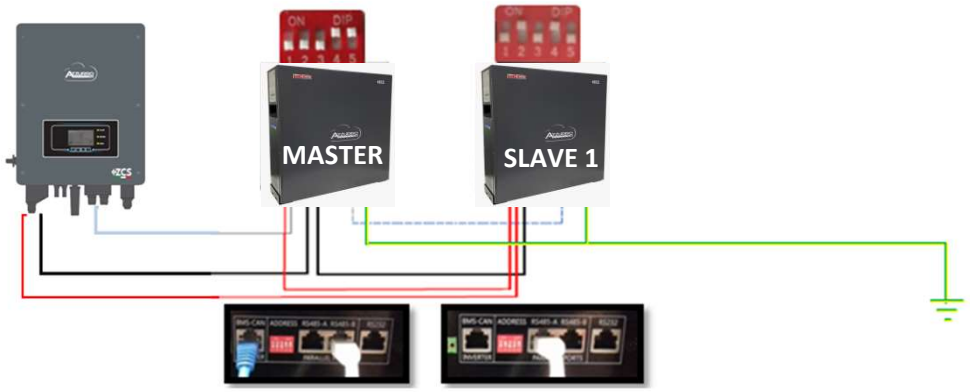
In the event of MULTIPLE BATTERIES, connect the communication cable from the CAN port of the inverter to the CAN-BMS port of the MASTER battery after defining the correct positioning of the DIP Switches:

The MASTER battery must be connected to the communication cable inside the battery box starting from the **RS485-B** port and arriving at the **RS485-A** communication port of the Slave 1 battery. **(Attention: do not connect the RS485-A port to the Master battery).**
In case of additional batteries, the communication cable will be connected as indicated above for the connection of the MASTER battery to SLAVE 1.
The last battery will only have the **RS485-A** port connected.
As for the power connections, all the batteries must be connected in parallel using the power cables supplied, making sure that the cable does not exceed a length of 2.5 m.
The **"NEGATIVE"** power cable coming out from the inverter must be connected to the **MASTER** battery on the **NEGATIVE** terminal, while the **"POSITIVE"** cable must be connected to the last **SLAVE N** battery on the **POSITIVE** terminal.

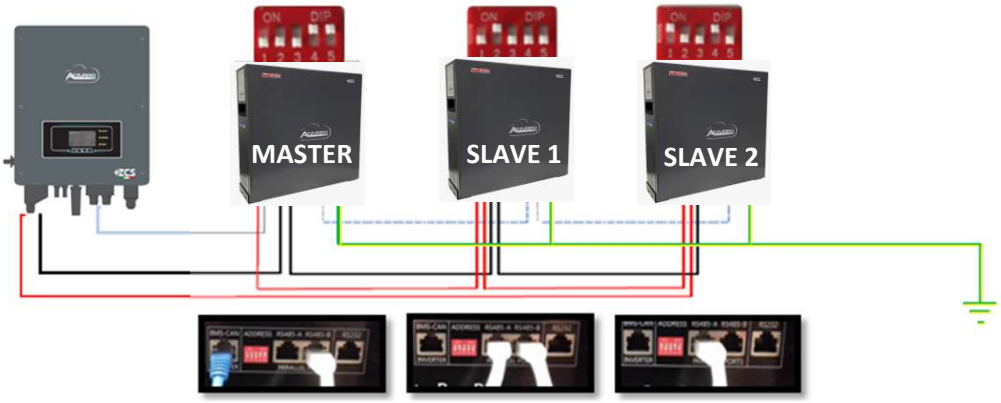




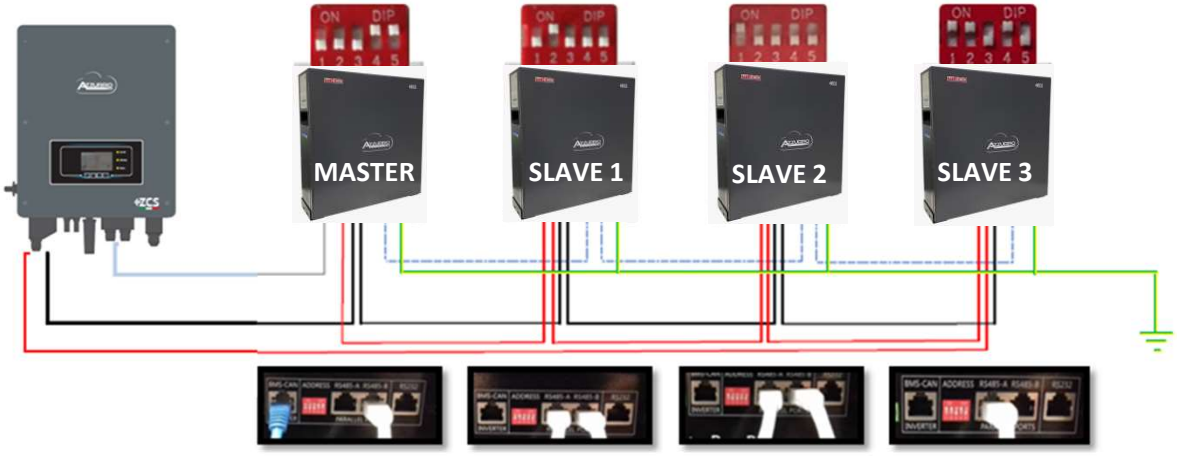
Connecting 2 batteries



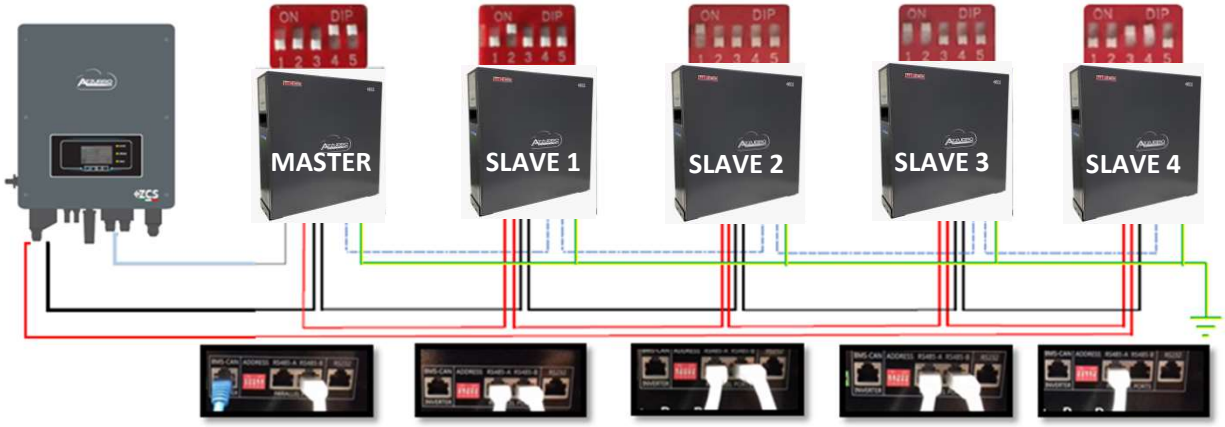
Connecting 3 batteries



Connecting 4 batteries



Connecting 5 batteries



8.5 SINGLE 4K4PRO WECO BATTERY

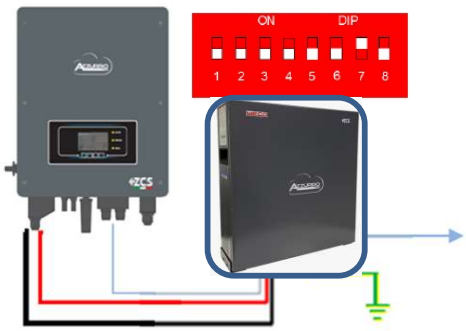
Note: Maximum DoD programmable 90%

Note: The communication cables are in the kit that is contained in the WeCo battery box

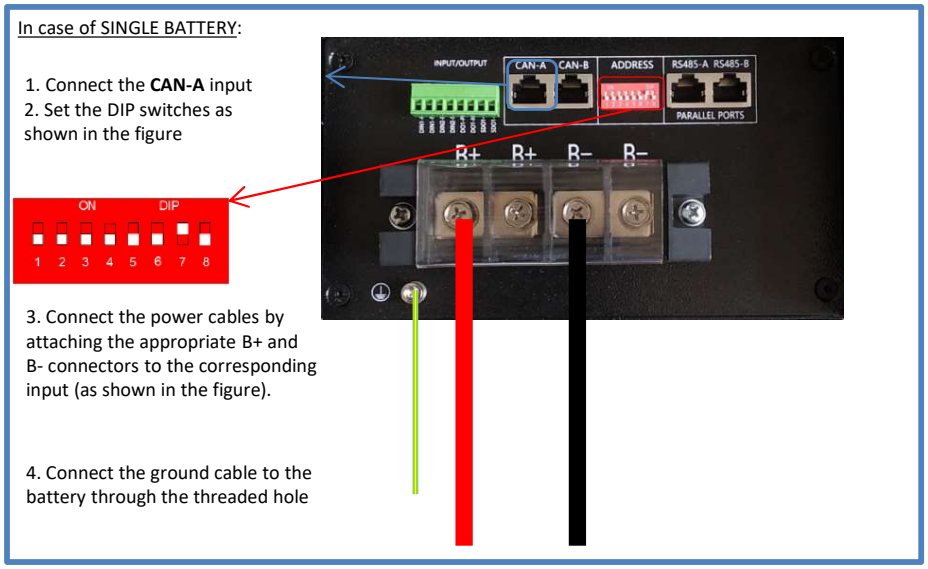
Note: Turn off the batteries each time the position of the DIP switches is changed.

In case of multiple batteries connected in parallel or when adding new batteries to a system with batteries already installed and operating, make sure that the difference between the voltages of all the batteries is less than 1.5 volts. Each battery must be measured individually, therefore make sure the batteries are not connected to each other. (If the value is higher than 1.5 volts, contact Technical Support).

Communication cable pinout between Weco battery and inverter From left to right			
Inverter		1 … 4	PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue
Weco		1 … 8	PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue PIN 5: not used PIN 6: not used PIN 7: not used PIN 8: not used



Inv-Batt communication cable
Positive power cable
Negative power cable
Ground cable (PE)



In case of SINGLE BATTERY:

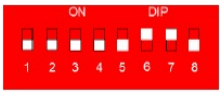
1. Connect the **CAN-A** input
2. Set the DIP switches as shown in the figure

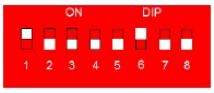
3. Connect the power cables by attaching the appropriate B+ and B- connectors to the corresponding input (as shown in the figure).

4. Connect the ground cable to the battery through the threaded hole

8.6 WECO 4K4PRO BATTERIES IN PARALLEL

In case of MULTIPLE BATTERIES, connect the communication cable from the CAN port of the inverter to the CAN- A port of the MASTER battery after defining the correct positioning of the DIP switches:





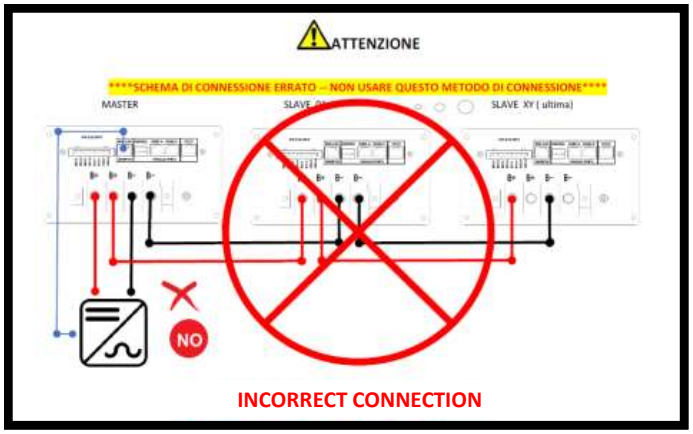
The MASTER battery must be connected to the communication cable inside the battery box starting from the **RS485-B** port and arriving at the **RS485-A** communication port of the Slave 1 battery.

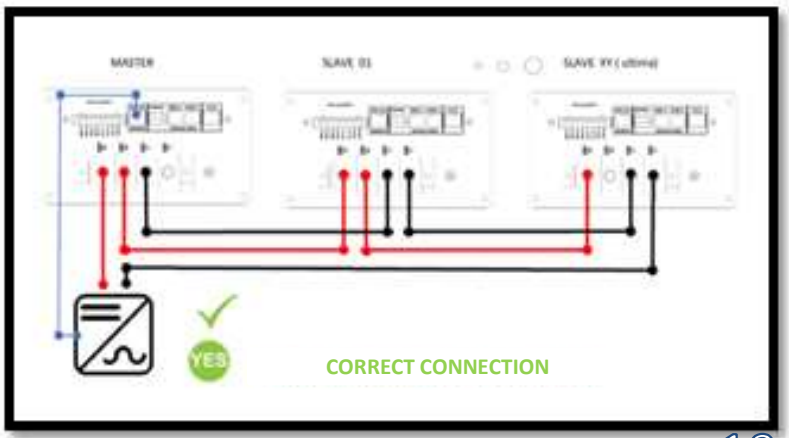
(Attention: do not connect the RS485-A port to the Master battery).

In case of additional batteries, connect the communication cable as indicated above for the connection of the MASTER battery to SLAVE 1. The last battery will only have the **RS485-A** port connected.

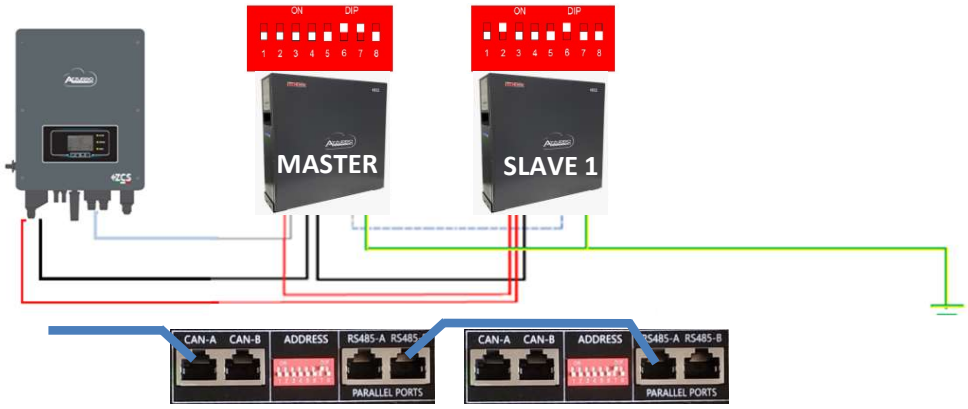
As for the power connections, all the batteries must be connected in parallel using the power cables supplied, making sure that the cable does not exceed a length of 2.5 m.

The **"NEGATIVE"** power cable coming from inverter must be connected to the **MASTER** battery on the **NEGATIVE** terminal, while the **"POSITIVE**" power cable must be connected to the last **SLAVE N** battery on the **POSITIVE** terminal.

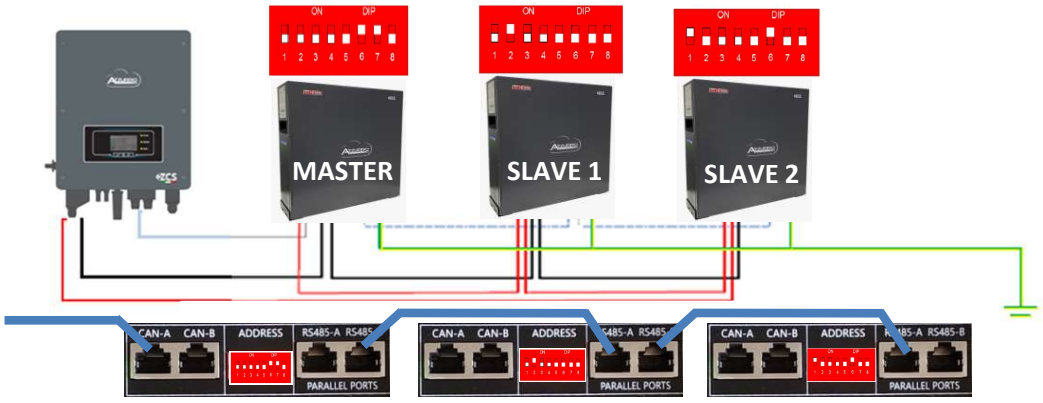




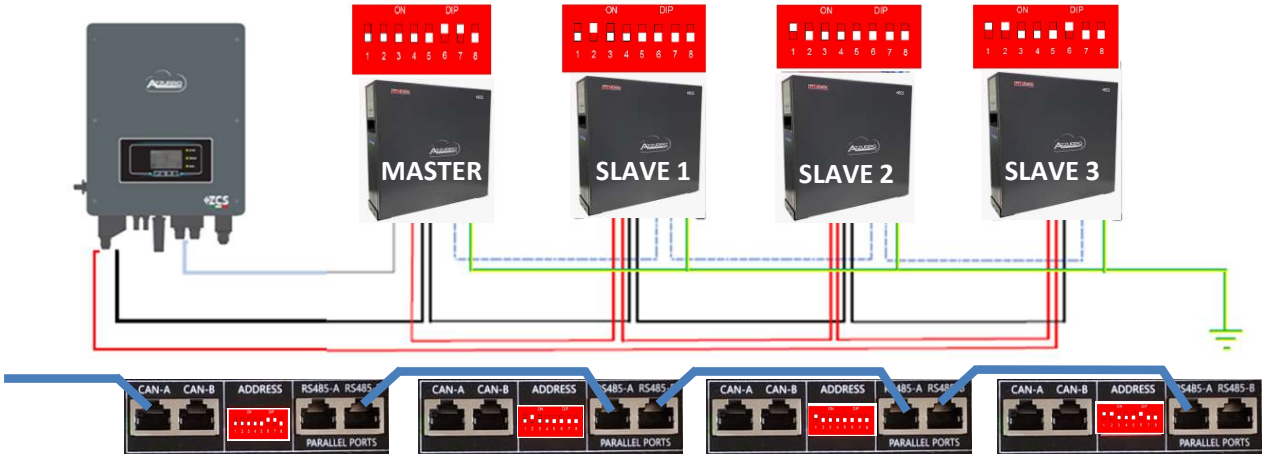
Connecting 2 batteries



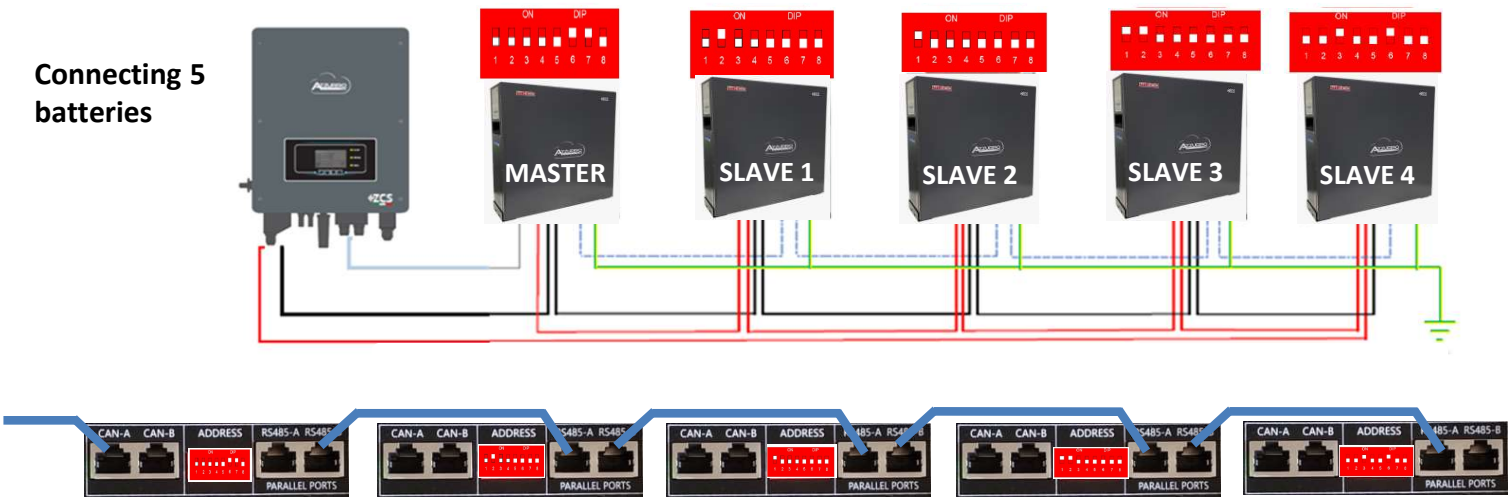
Connecting 3 batteries



Connecting 4 batteries



Connecting 5 batteries

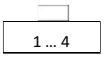
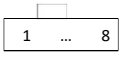


8.7 SINGLE 5k3 WECO BATTERY

Note: Maximum DoD programmable 90%

Note: The communication and power cables must be ordered separately

Note: Turn off the batteries each time the position of the DIP switches is changed.

Communication cable pinout between Weco battery and Inverter inverter From left to right			
Inverter			PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue
Weco			PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue PIN 5: not used PIN 6: not used PIN 7: not used PIN 8: not used

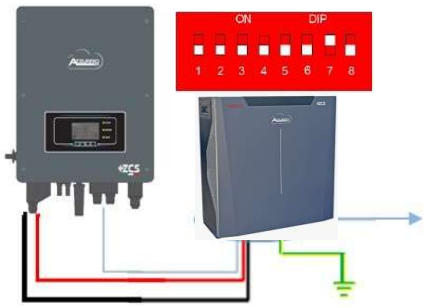
In case of multiple batteries connected in parallel or when adding new batteries to a system with batteries already installed and operating, make sure that the difference between the voltages of all the batteries is less than 1.5 volts. Each battery must be measured individually, therefore make sure the batteries are not connected to each other. (If the value is higher than 1.5 volts, contact Technical Support).

To access the battery connection, remove the cover of the LV section located on the left hand side by unscrewing the crosshead screws. See the figure to identify the LV section

Low voltage connection (LV)

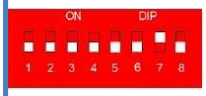
High voltage connection (HV)

Attention: When connecting 5k3 batteries to single-phase Inverter inverters, only the low voltage section must be used. To prevent damage to the batteries or inverter, do not use the high voltage section.



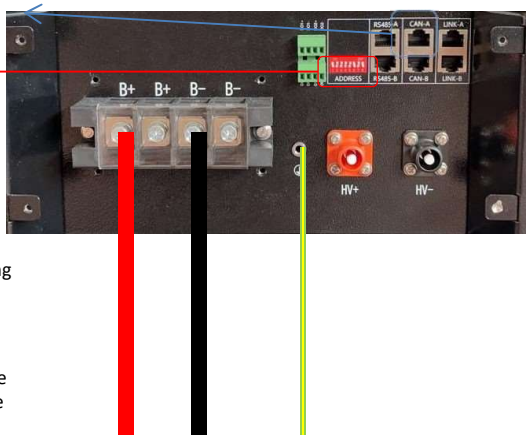
Inv-Batt communication cable
Positive power cable
Negative power cable
Ground cable (PE)

In case of a SINGLE BATTERY:
1. Connect the **CAN-A** input
2. Set the DIP switches as shown in the figure



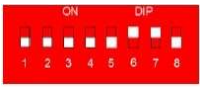
3. Connect the power cables by attaching the appropriate B+ and B- connectors to the corresponding input (as shown in the figure).

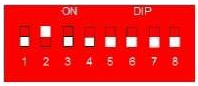
4. Connect the ground cable to the battery through the threaded hole



8.8 WECO 5k3 BATTERIES IN PARALLEL

In case of MULTIPLE BATTERIES, connect the communication cable from the CAN port of the inverter to the CAN- A port of the MASTER battery after defining the correct positioning of the DIP switches:





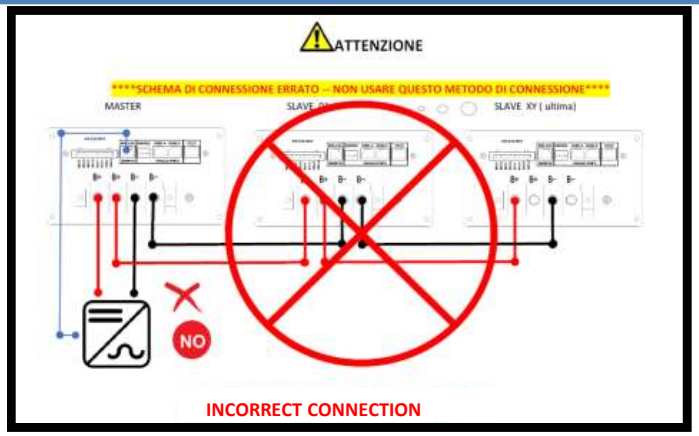
The MASTER battery must be connected to the communication cable inside the battery box starting from the **RS485-B** port and arriving at the **RS485-A** communication port of the Slave 1 battery.

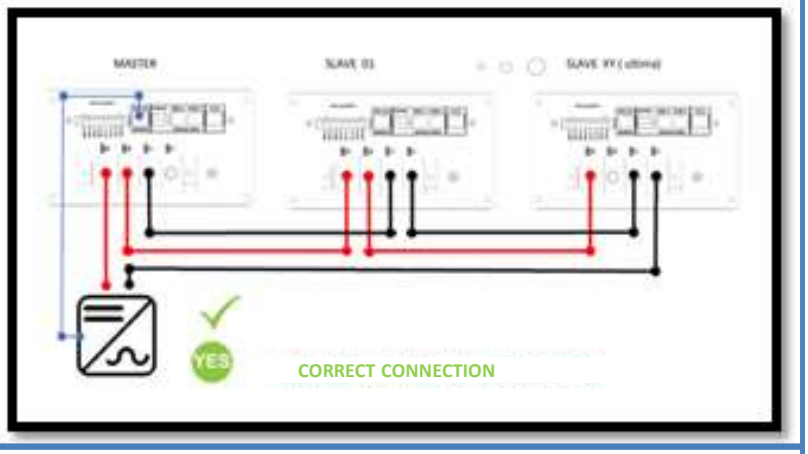
(Attention: do not connect the RS485-A port to the Master battery).

In case of additional batteries, connect the communication cable as indicated above for the connection of the MASTER battery to SLAVE 1. The last battery will only have the **RS485-A** port connected.

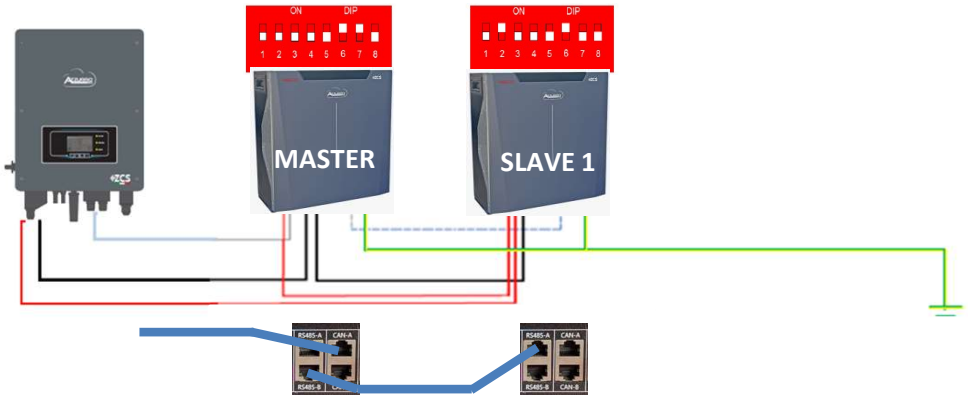
As for the power connections, all the batteries must be connected in parallel using the power cables supplied, making sure that the cable does not exceed a length of 2.5 m.

The **"NEGATIVE"** power cable coming from inverter must be connected to the **MASTER** battery on the **NEGATIVE** terminal, while the **"POSITIVE**" power cable must be connected to the last **SLAVE N** battery on the **POSITIVE** terminal.

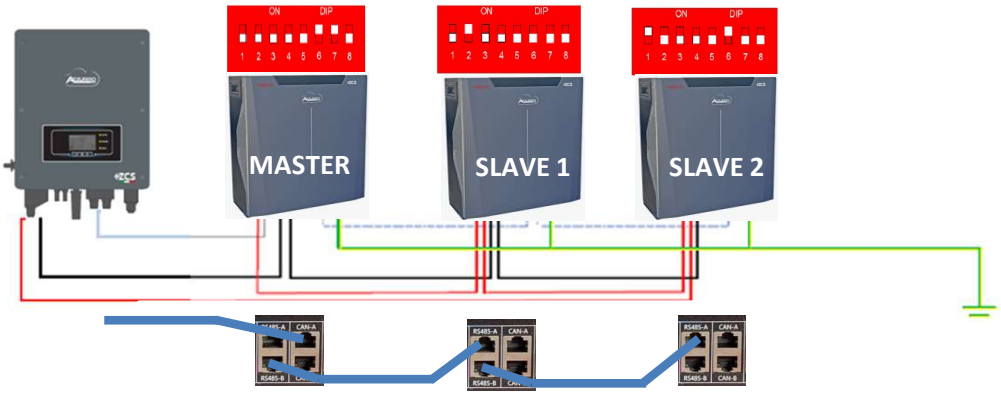




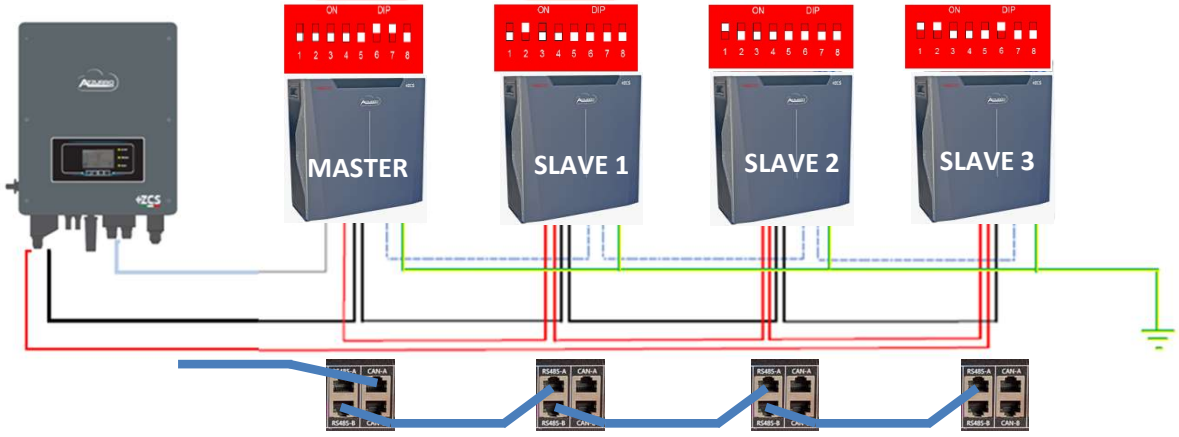
Connecting 2 batteries



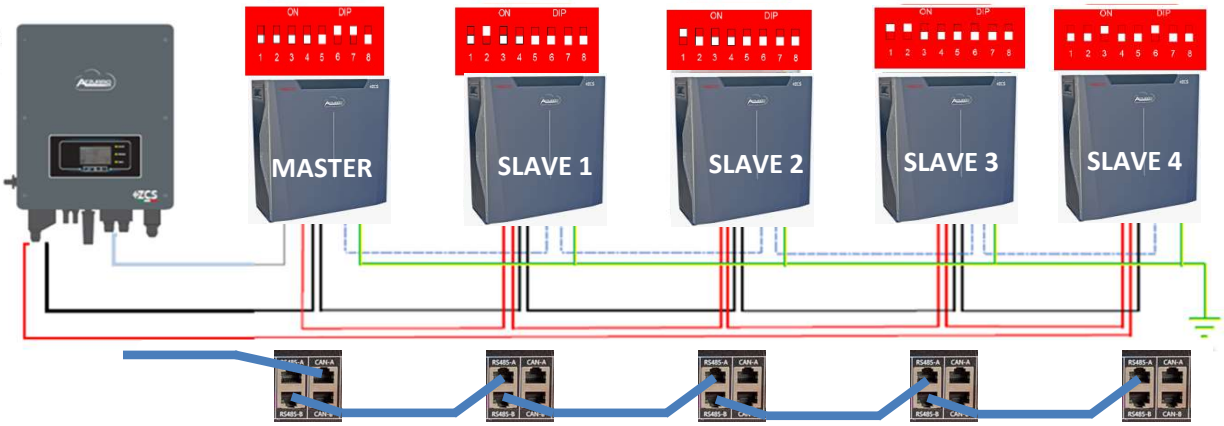
Connecting 3 batteries



Connecting 4 batteries



Connecting 5 batteries



8.9 SINGLE 5K3XP WECO BATTERY

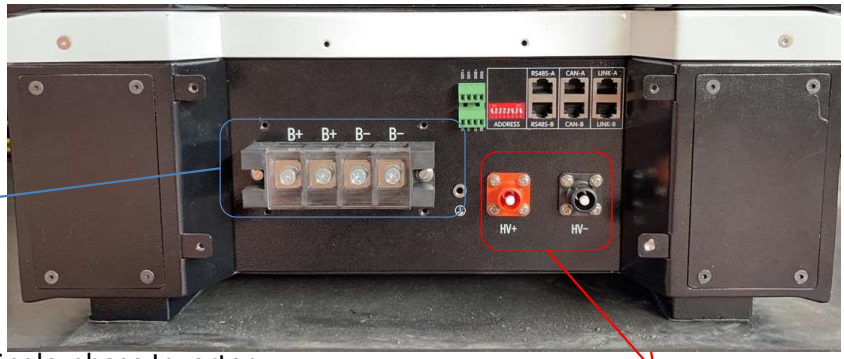
Note: Maximum DoD programmable 90%

Note: The communication and power cables must be ordered separately

Note: Turn off the batteries each time of the DIP switches is position changed.

Pinout cavo di comunicazione tra batteria Weco ed Inverter Da sinistra verso destra		
Inverter	 	PIN 1: Bianco arancio PIN 2: arancio PIN 3: bianco verde PIN 4: blu
Weco	 	PIN 1: Bianco arancio PIN 2: arancio PIN 3: bianco verde PIN 4: blu PIN 5: non utilizzato PIN 6: non utilizzato PIN 7: non utilizzato PIN 8: non utilizzato

In case of multiple batteries connected in parallel or when adding new batteries to a system with batteries already installed and operating, make sure that the difference between the voltages of all the batteries is less than 1,5 volts. Each battery must be measured individually, therefore make sure the batteries are not connected to each other. (If the value is higher than 1,5 volts, contact Technical Support). To access the battery connection, remove the cover of the LV section located on the left hand side by unscrewing the crosshead screws. See the figure to identify the LV section



Low voltage connector (LV)

High voltage connectors (HV)

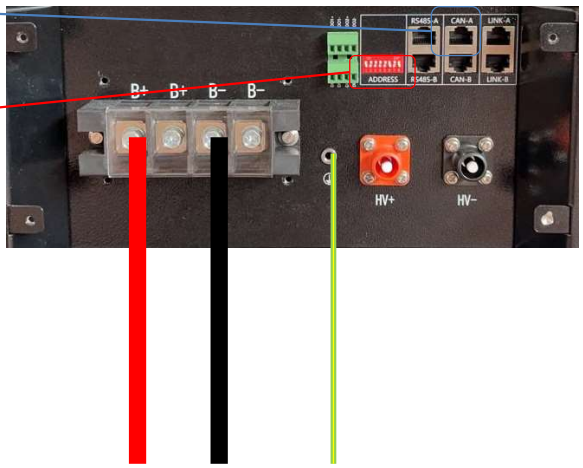
Attention: When connecting 5k3xp batteries to single-phase Inverter inverters, only the low voltage section must be used. To prevent damage to the batteries or inverter, do not use the high voltage section.

Inv-Batt communication cable
Positive power cable
Negative power cable
Ground cable (PE)

In case of a SINGLE BATTERY:
1. Connect the **CAN-A** input
2. Set the DIP switches as shown in the figure

3. Connect the power cables by attaching the appropriate B+ and B- connectors to the corresponding input (as shown in the figure).

4. Connect the ground cable to the battery through the threaded hole



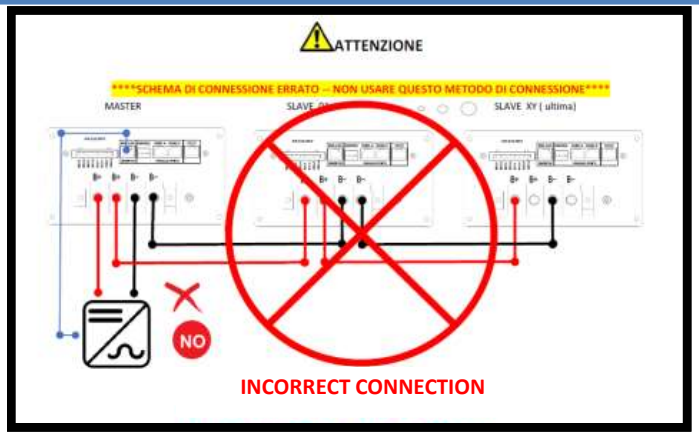
8.10 WECO 5K3XP BATTERIES IN PARALLEL

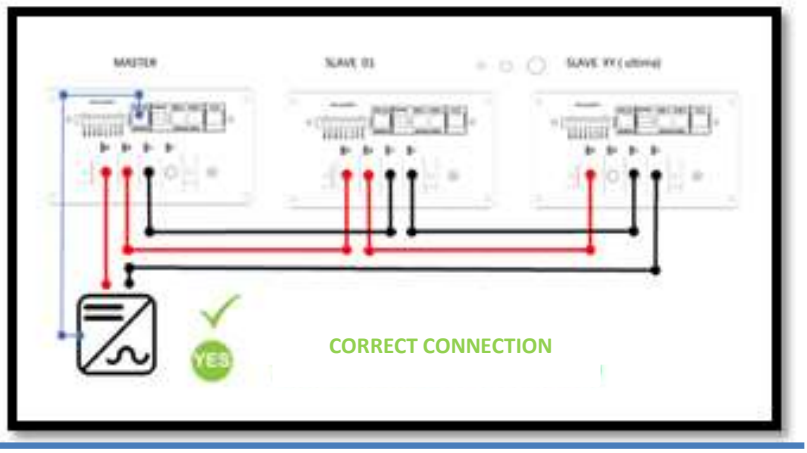
In case of MULTIPLE BATTERIES, connect the communication cable from the CAN port of the inverter to the CAN- A port of the MASTER battery after defining the correct positioning of the DIP switches:

The **RS485-B port of the** MASTER battery must be connected to the **RS485-A** port of the Slave 1 battery using the cable provided inside the battery box . **(NOTE: the RS485-A port of the Master battery will remain not connected).**

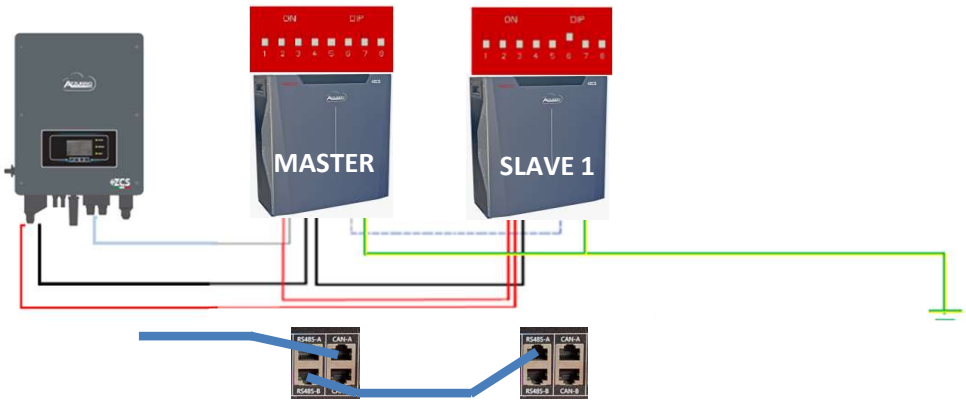
In case of additional batteries, the communication cable will be connected between the **RS485-B** port of the previous battery to the RS485-A port of the following battery. The last battery will only have the **RS485-A** port connected.As for the power connections, all the batteries must be connected in parallel using the power cables supplied, making sure that the cable does not exceed a length of 2.5 m.

The **"NEGATIVE"** power cable coming out from the inverter must be connected to the **MASTER** battery on the **NEGATIVE** terminal, while the **"POSITIVE"** cable must be connected to the last **SLAVE N** battery on the **POSITIVE** terminal.

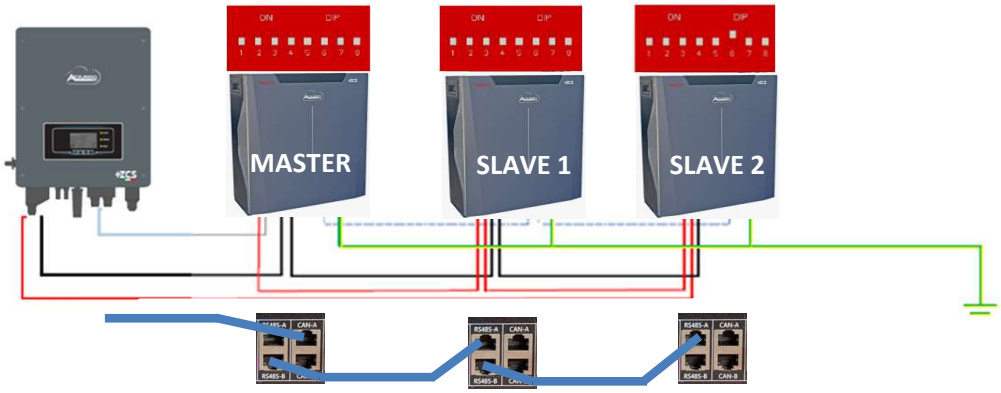




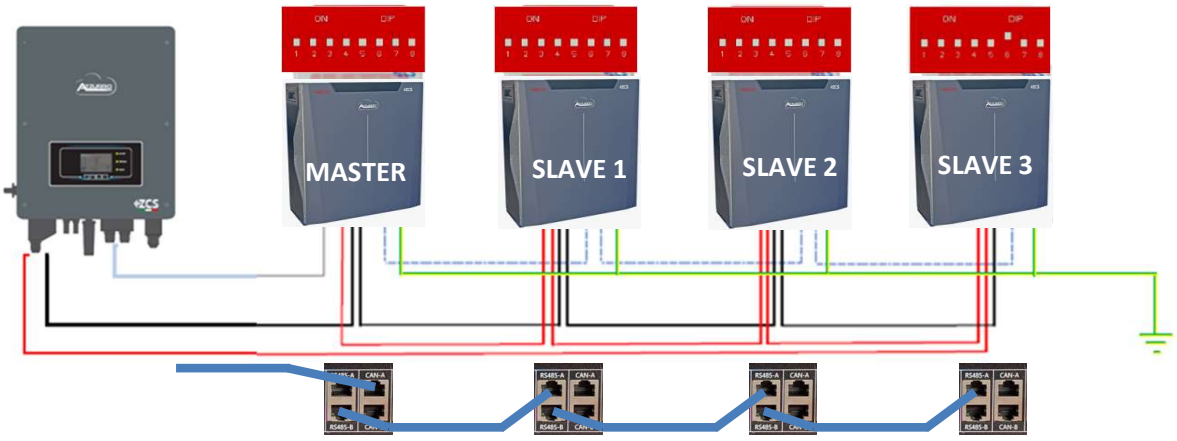
Connecting 2 batteries



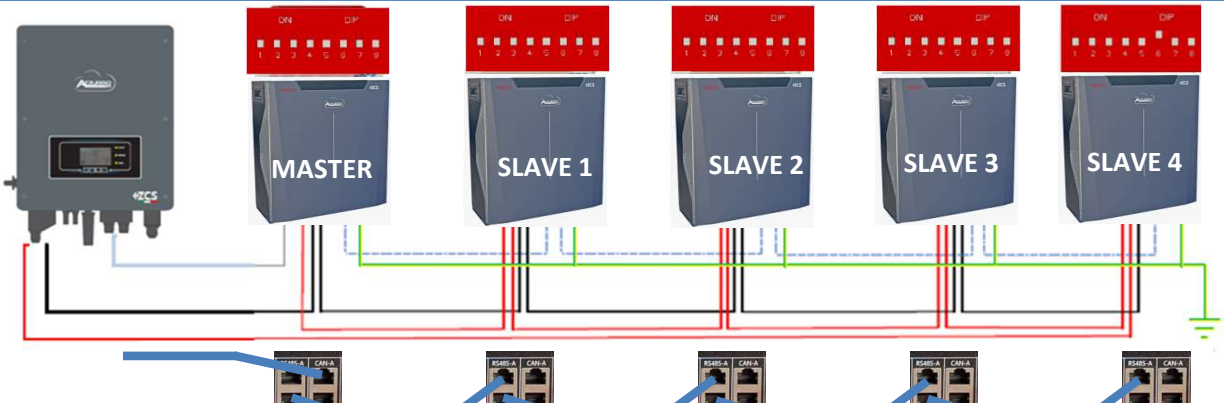
Connecting 3 batteries



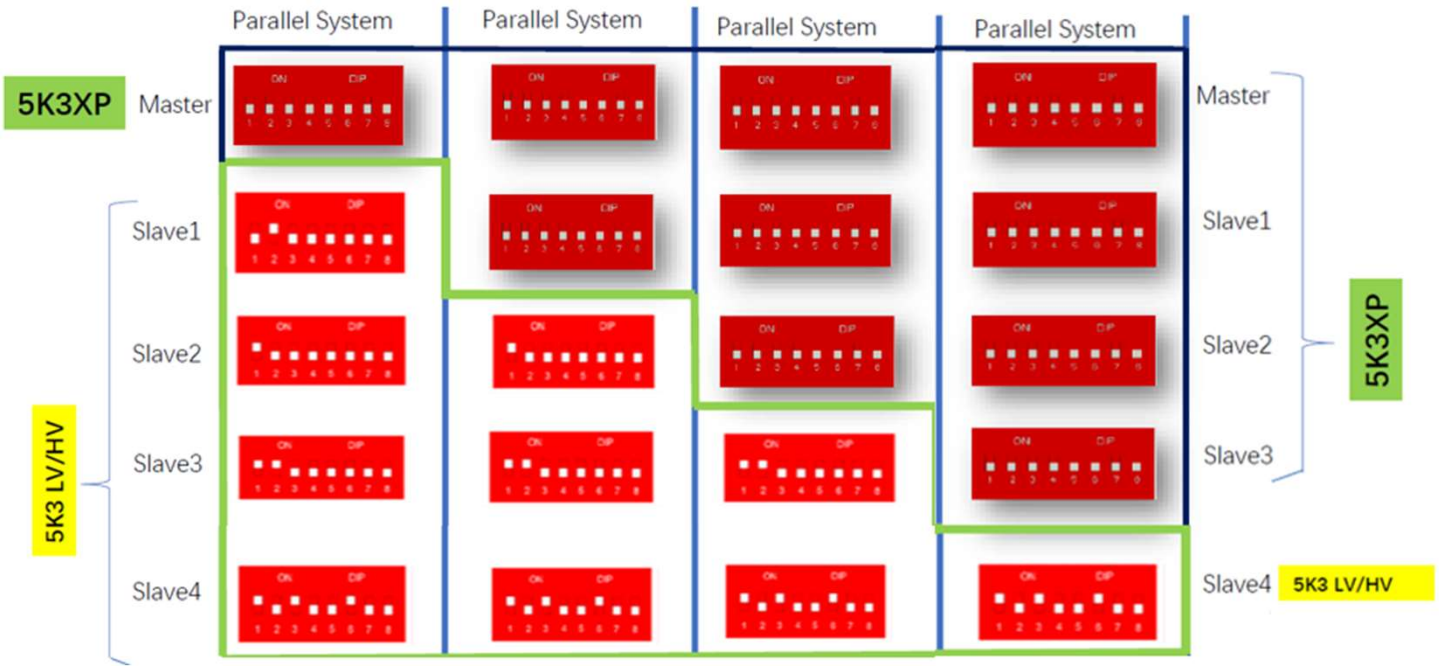
Connecting 4 batteries



Connecting 5 batteries



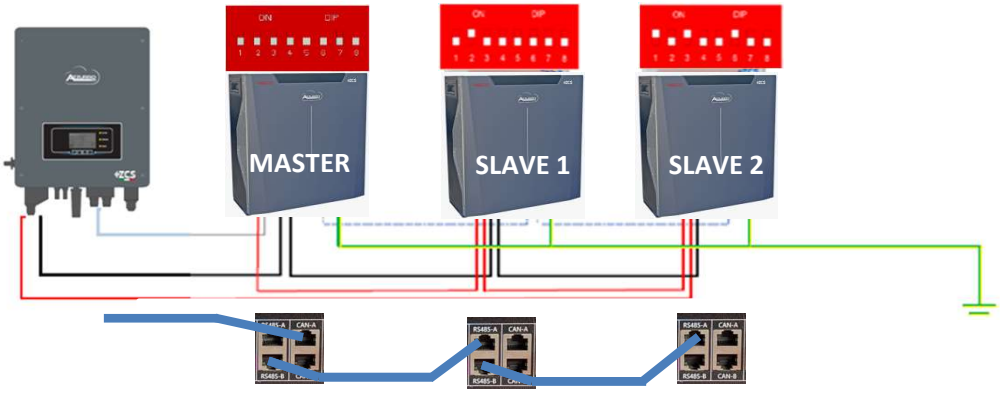
8.11 5K3XP BATTERIES AND 5K3 BATTERIES IN PARALLEL



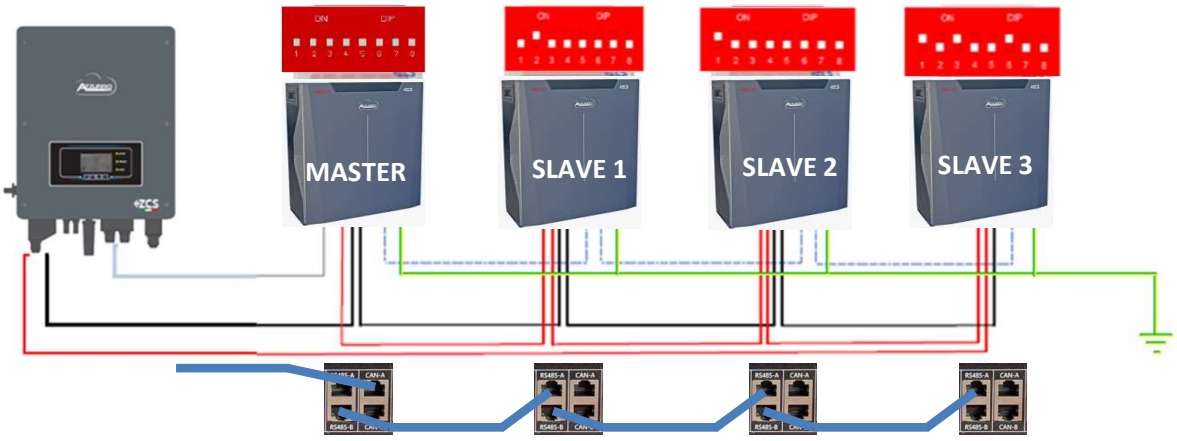
In case of 5K3XP and 5K3 in parallel:

- ✓ **Always provide as master the 5K3XP battery (if they are more than one set them as first Slaves);**
- ✓ **The setting of the DIP switches of the last 5K3 battery must be set as indicated in the example table - Slave 4;**
- ✓ **The DIP switches of the 5K3 batteries must be set according to the Slave number as shown in the table above (example DIP switch: Master 5K3XP - 00000000, Slave 1 5K3XP - 00000000, Slave 2 5K3 - 10000000 and Slave 3 5K3 - 10100100).**

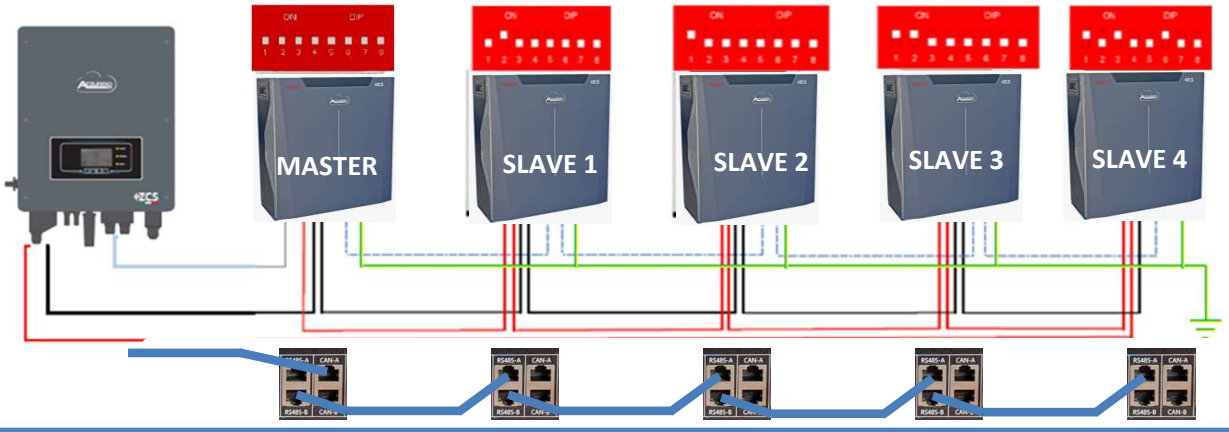
Connecting 3 batteries:
Master 5K3XP
Slave 1 5K3
Slave 2 5K3



Connecting 4 batteries:
Master 5K3XP
Slave 1 5K3
Slave 2 5K3
Slave 3 5K3



Connecting 5 batteries:
Master 5K3XP
Slave 1 5K3
Slave 2 5K3
Slave 3 5K3
Slave 4 5K3



8.12 SINGLE AZZURRO 5000 BATTERY

Note: Maximum DoD programmable 90%

Note: The communication cable is located inside the kit in the inverter box.

In case of multiple batteries connected in parallel or when adding new batteries to a system with batteries already installed and working, make sure that the difference between the voltages of all the batteries is less than 1.5 Volt. Each battery must be measured individually, so make sure the batteries are not connected to each other. (If the value is higher than 1.5 Volt, contact Technical Support)

Communication cable pinout between the Azzurro 5000 battery and Inverter inverter. From left to right		
Inverter		PIN 1: White orange PIN 2: orange PIN 3: white green PIN 4: blue
Azzurro 5000		PIN 1: not used PIN 2: not used PIN 3: not used PIN 4: White orange PIN 5: orange PIN 6: not used PIN 7: white blue PIN 8: blue

Inv-Batt communication cable
Positive power cable
Negative power cable
Ground cable (PE)

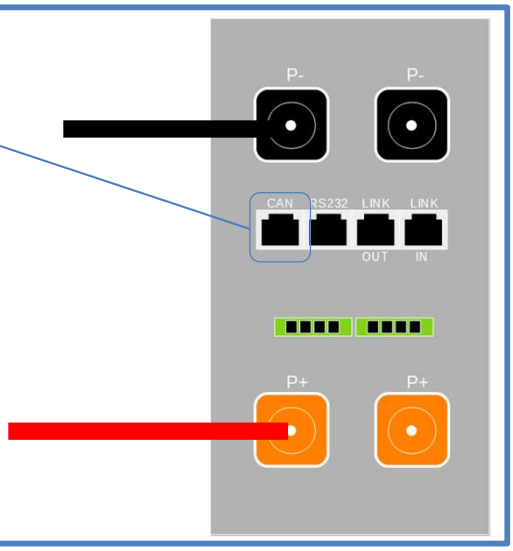
In case of a SINGLE BATTERY:

1. Connect the **CAN** input

2. The power connections must be made by attaching the appropriate P+ and P- connectors to the corresponding input (as shown in the figure).

3. Connect the ground cable to the battery through the threaded hole indicated by the ground symbol.

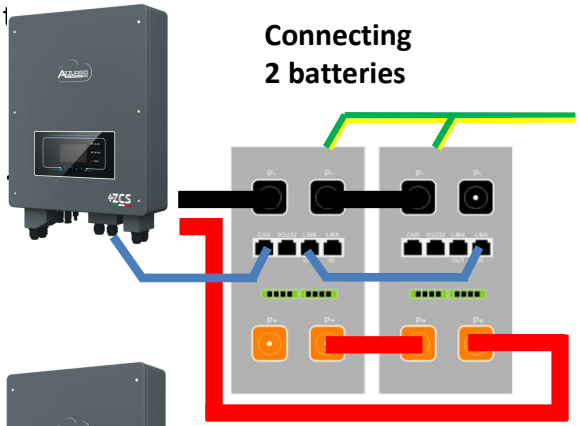
4. Press the button on the front of the battery to switch it on.



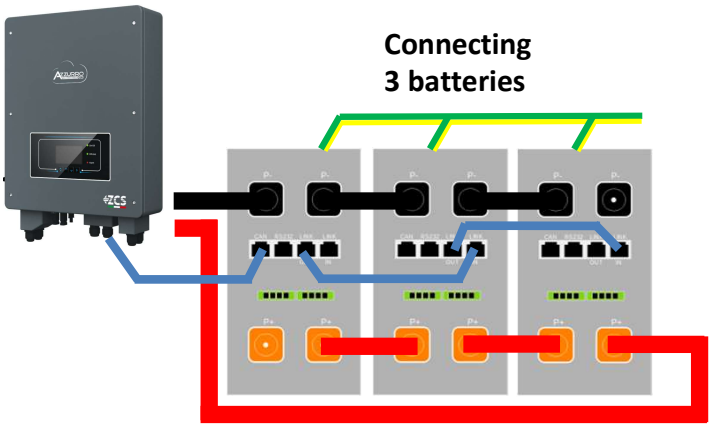
8.13 AZZURRO 5000 BATTERIES IN PARALLEL

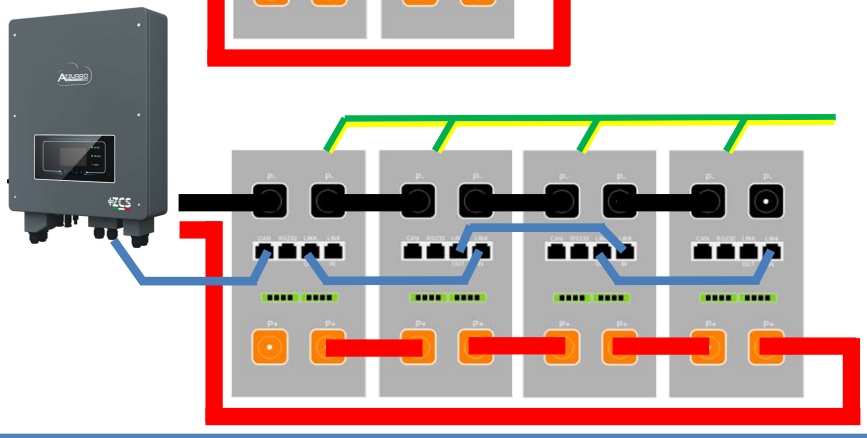
In the event of MULTIPLE BATTERIES, connect the communication cable from the CAN port of the inverter to the CAN port of the MASTER battery. The MASTER battery must be connected to the communication cable found inside the battery box starting from the **LINK OUT** port and arriving at the **LINK IN** communication port of the Slave 1 battery. **(Attention: do not connect the LINK IN port to the Master battery).**
In case of additional batteries, the communication cable will be connected as indicated above for the connection of the MASTER battery to SLAVE 1. The last battery will only have the **LINK IN** port connected.
As for the power connections, all the batteries must be connected in parallel using the power cables supplied, making sure that the cable does not exceed a length of 2.0 m.
The **"NEGATIVE"** power cable coming out from the inverter must be connected to the **MASTER** battery on the **NEGATIVE** terminal, while the **"POSITIVE"** cable must be connected to the last **SLAVE N** battery on the **POSITIVE**

Connecting 2 batteries



Connecting 3 batteries

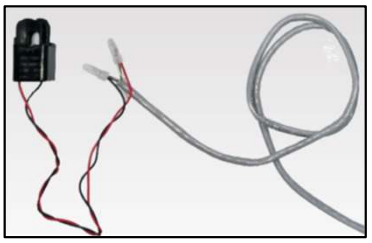




Connecting 4 batteries

INSTALLATION OF SINGLE-PHASE SYSTEM

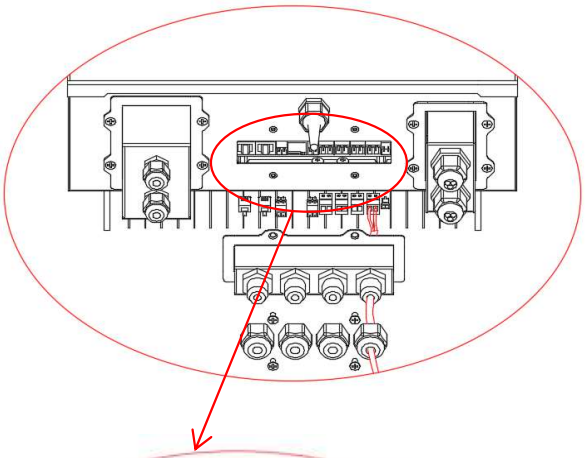
9. CURRENT SENSOR CONNECTION



For the extension cable it is recommended to use an 8-pole category 6 STP cable, or a 2x0.5 mm² shielded bipolar alarm cable, in the first case 4 conductors will be connected on one pole of the sensor and the other 4 will be connected on the other pole.
To prevent the conductor wires from breaking, it is recommended to use a cable with flexible and non-rigid conductors.

Unscrew the 4 screws (A) with a screwdriver.

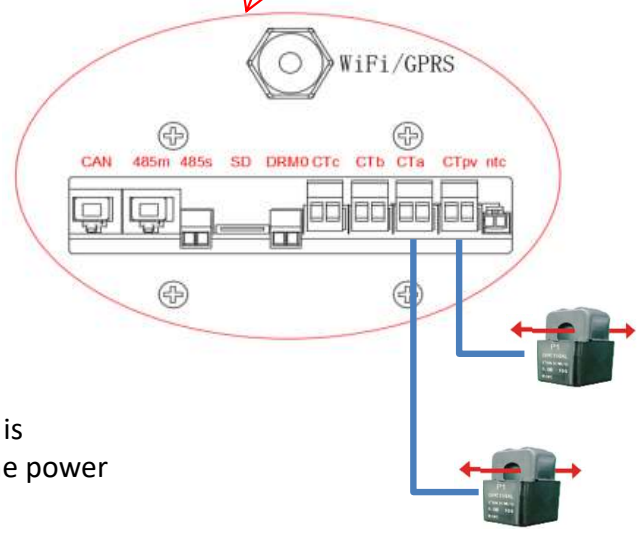
Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).



Route the CT cables through the cable glands on the right side of the cover, connect the positive and negative cables to the counterpart contained in the inverter kit, then insert the counterpart into the corresponding ports on the inverter board.

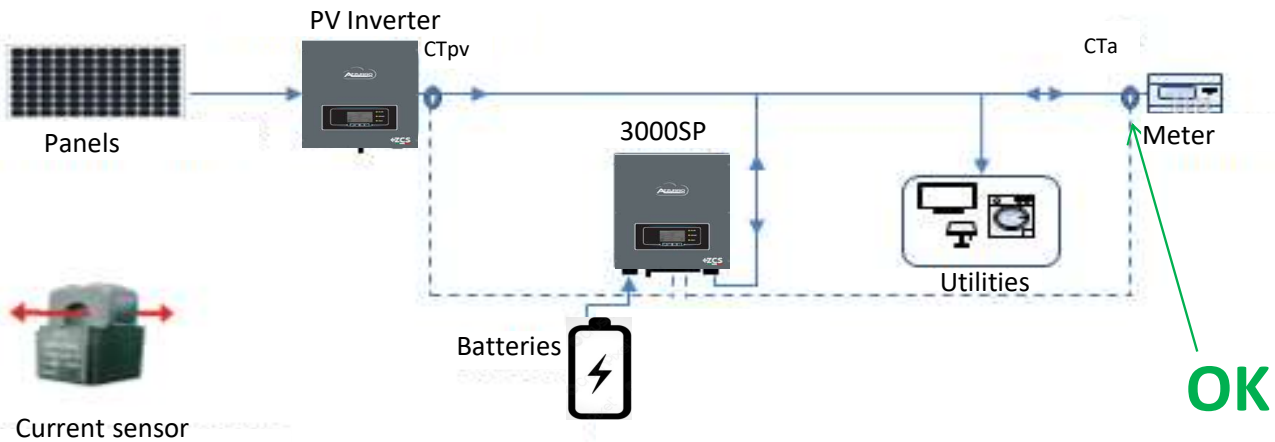
Replace the cover and secure it with the four screws; then tighten the cable glands.

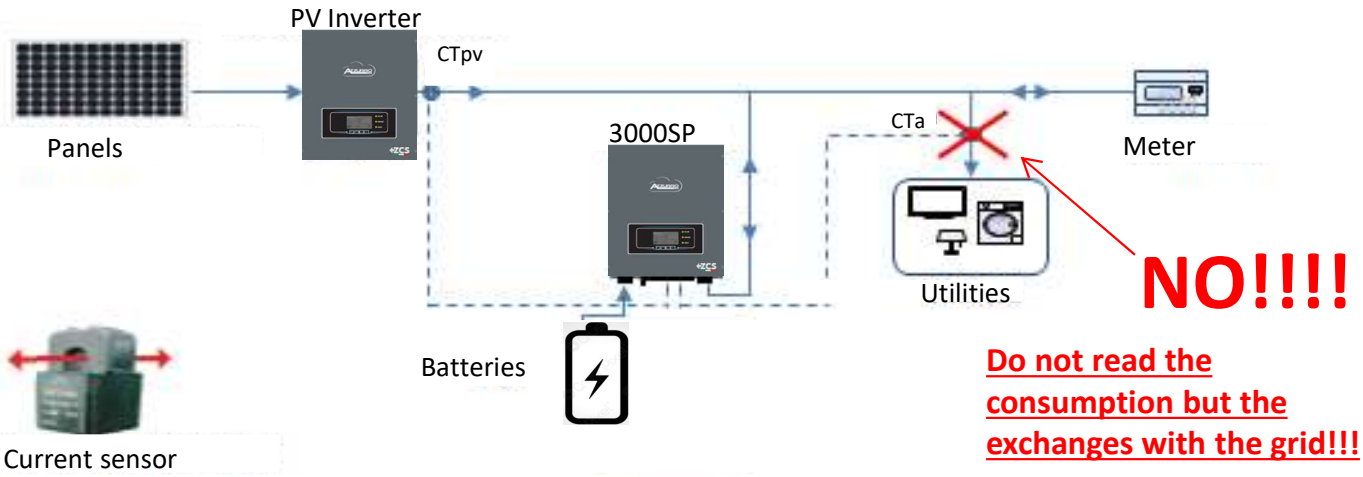
Correctly position the current sensors (CT):



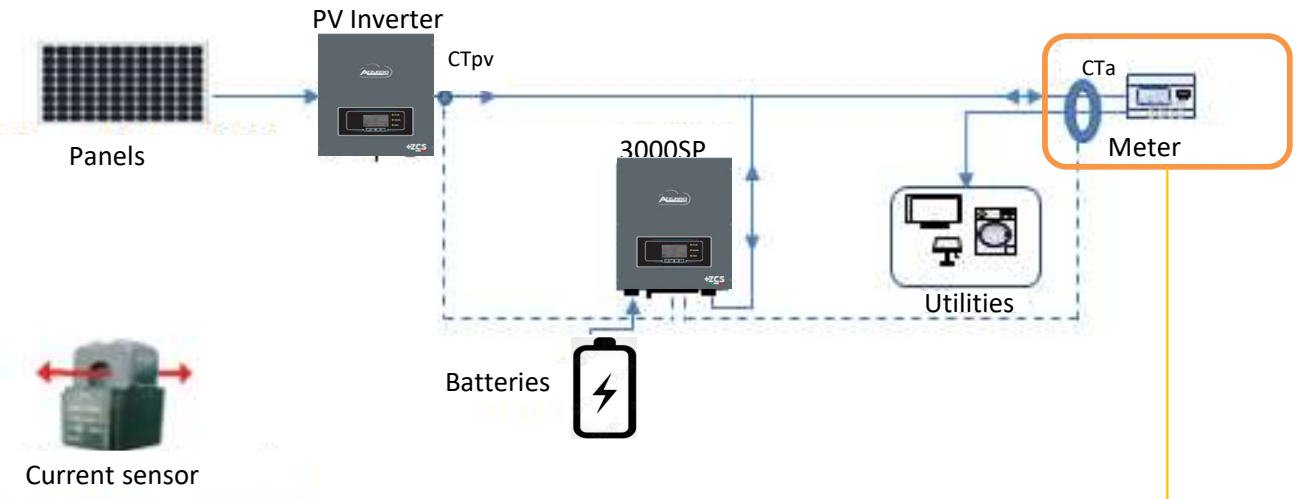
Note: The direction of the CTpv is independent of the installation.

- **CTpv** (measures the photovoltaic production).
  Must be positioned on the phase cable coming out from the photovoltaic inverter (AC side) on the same phase where the storage was installed.
- **CTa** (measures the current exchanged with the grid).
  Position the **CTa** sensor on the phase where the storage system is installed, at the output of the import/export meter so that all the power flows entering and leaving the meter can be read.

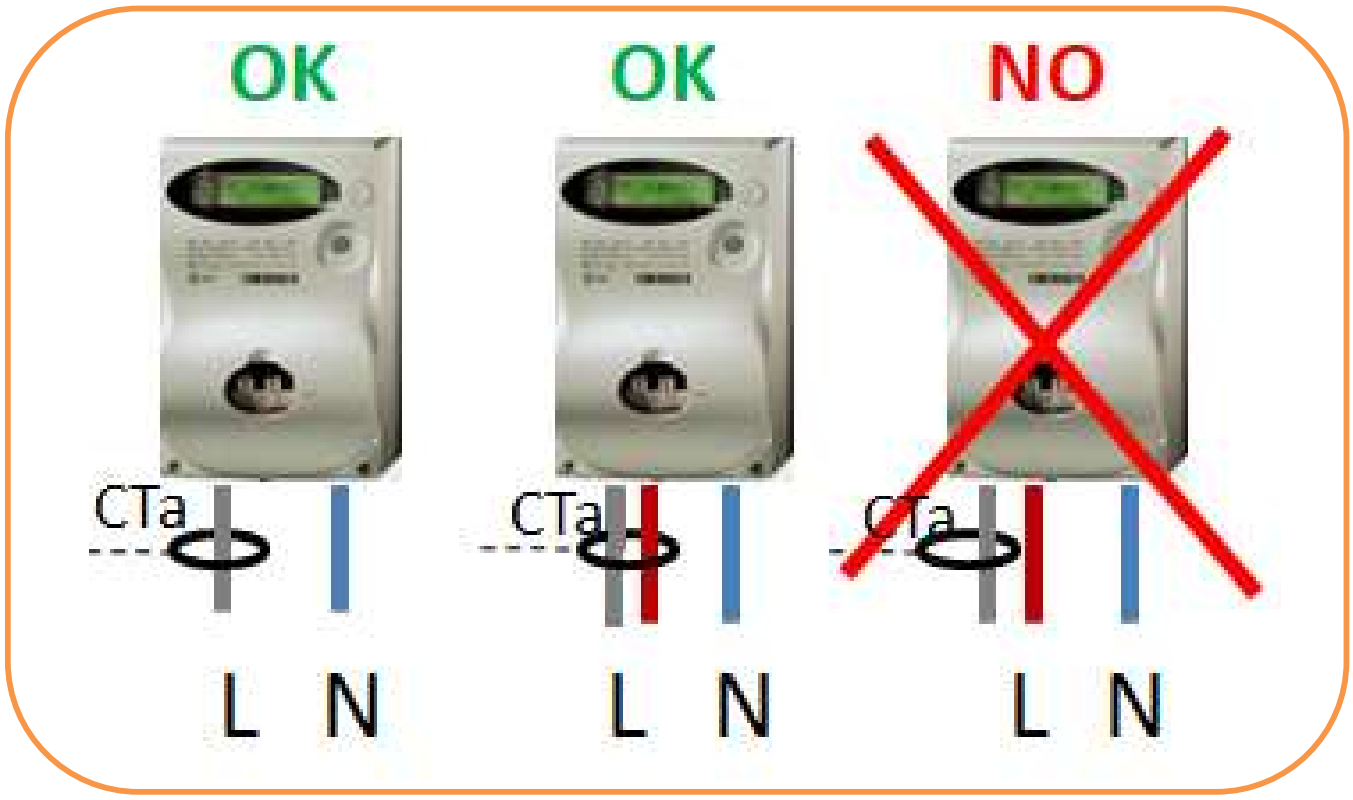




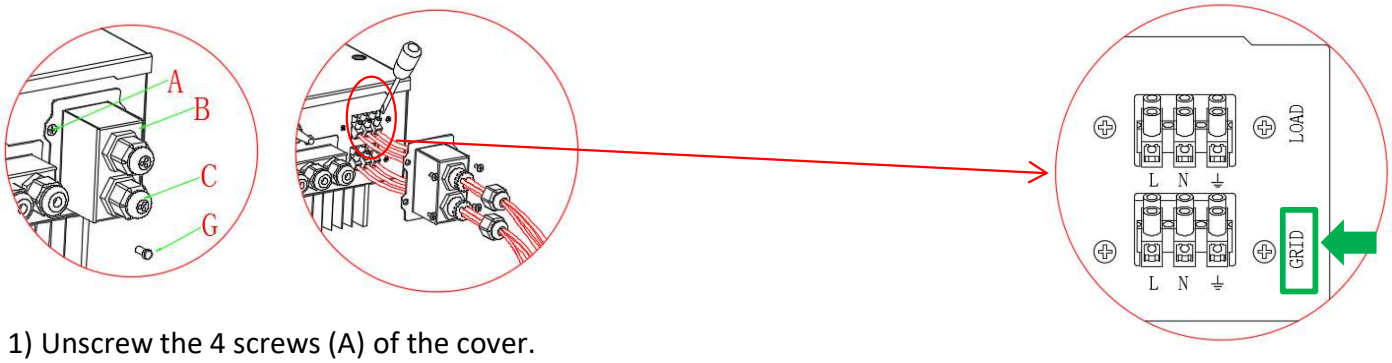
Do not read the consumption but the exchanges with the grid!!!



The sensor must include all phase cables entering or leaving the meter.



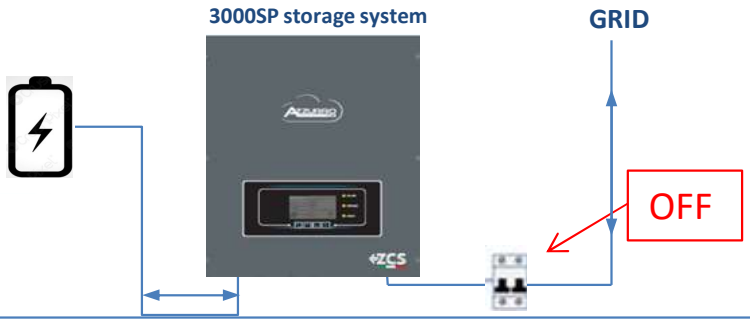
10. CONNECTING THE AC - GRID POWER CABLES



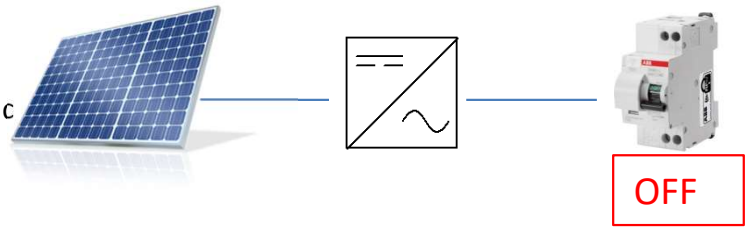
1) Unscrew the 4 screws (A) of the cover.
2) Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).
3) Pass the AC cable through the cable gland (C), and connect the phase, neutral and ground cables to the **GRID** terminal block.

11.1 INITIAL SET UP PROCEDURE OF THE 3000SP STORAGE SYSTEM

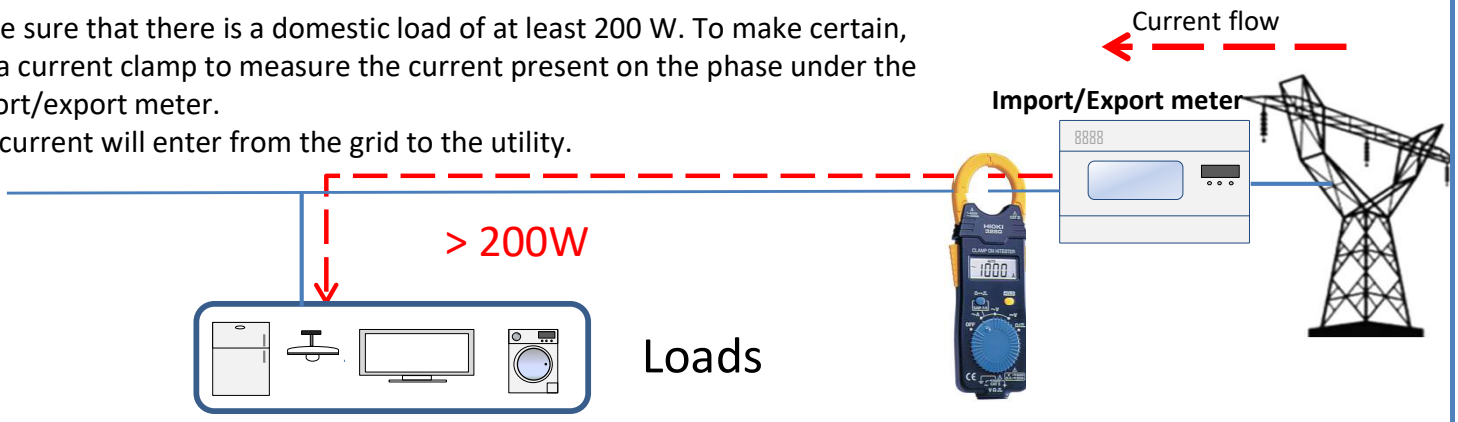
Make sure that the AC circuit breaker of the 3000SP system is open and that no AC voltage is present at the ends of the 3000SP.



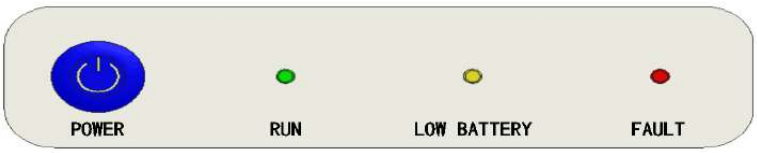
Make sure the PV system is not producing any power on the phase where the 3000SP system is connected, then open the AC circuit breaker dedicated to the photovoltaic inverter to verify that no power is being produced.



Make sure that there is a domestic load of at least 200 W. To make certain, use a current clamp to measure the current present on the phase under the import/export meter.
The current will enter from the grid to the utility.



Turn on the batteries:

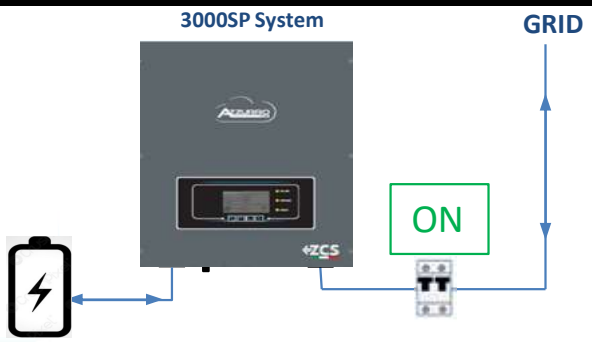


To turn on **Pylontech** batteries: bring the switch on the front of **all the batteries** to the ON position.

Press the red SW button of **a single** battery for one second, the internal contactor will close automatically.

In case of **WeCo** batteries, press the POWER button of each battery for 1 second, the RUN LED will turn on and the internal contactor will close automatically.

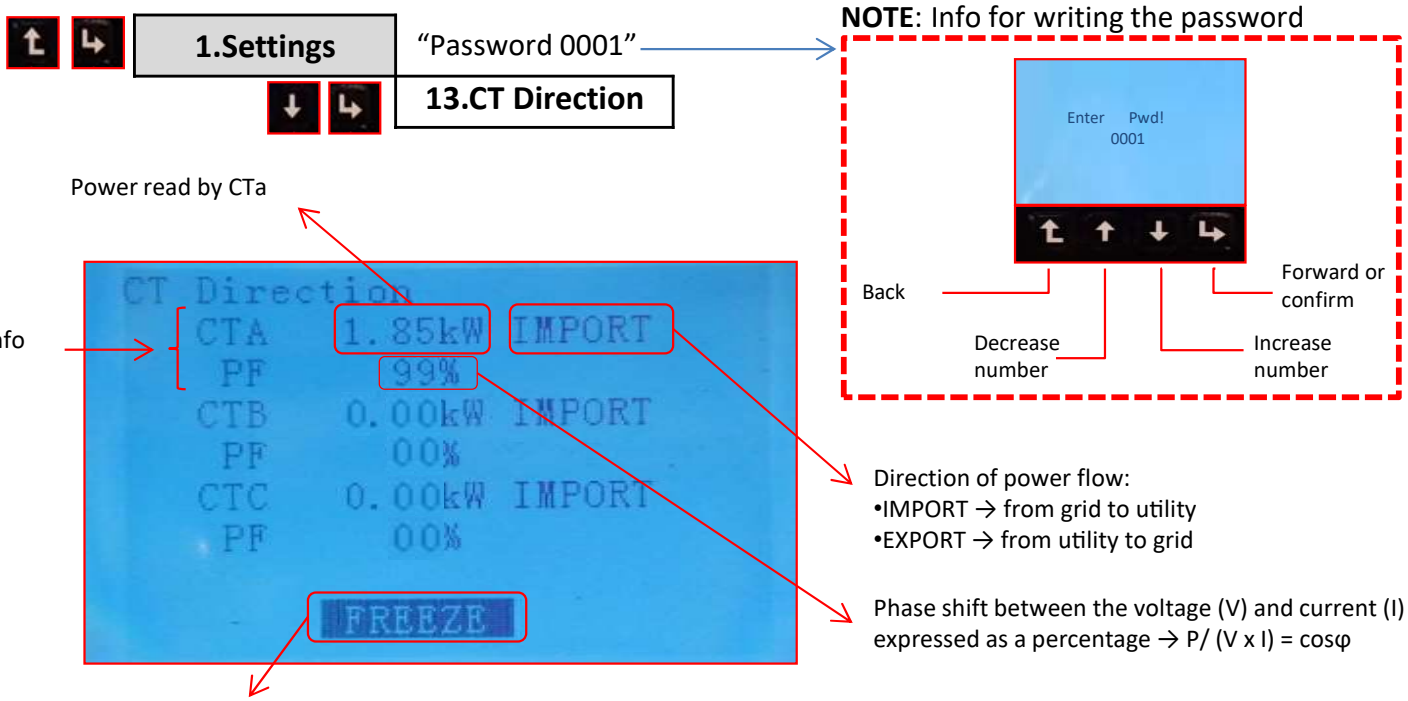
Close the AC circuit breaker of the 3000SP system so that it is supplied with AC voltage. The inverter will turn on.



11.2 INITIAL SET UP PROCEDURE OF 3000SP SYSTEM - FREEZING OF CURRENT SENSORS

The procedure for freezing the current sensors is available from firmware version 2.00 of the Service Code onwards; in the event of lower Service Codes, contact technical support to receive the updated firmware.

To perform the freezing operation, follow the instructions below:



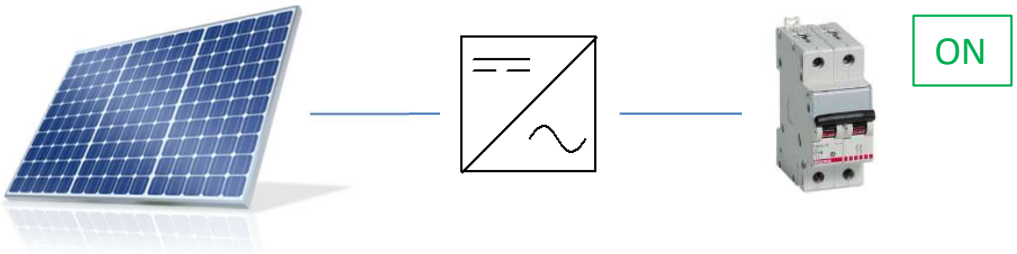
Indicates the status of the current sensors:
- UNFREEZE → direction not blocked (at each system start, the direction depends on the direction of the first current flow).
- FREEZE → direction blocked (sensors keep the same direction at each start up).

After checking for the presence of a power flow towards the utility (IMPORT), freeze the CTs by pressing the arrow ↑ so that the word **FREEZE** appears at the bottom and then confirm with the fourth button ↳

To unfreeze, press the third button ↓ to display the **UNFREEZE** message and then confirm ↳. By switching the system off and on in this way, the sensor can once again the directed.

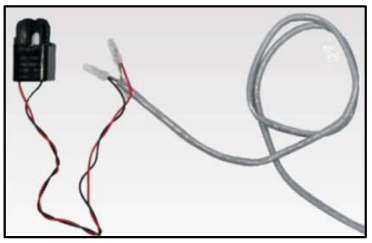
11.3 INITIAL SET-UP PROCEDURE OF THE 3000SP SYSTEM - PHOTOVOLTAIC START UP

Close the AC circuit breaker of the 3000SP system so that it is supplied with AC voltage.



INSTALLATION OF THREE-PHASE SYSTEM

12. CURRENT SENSOR CONNECTION

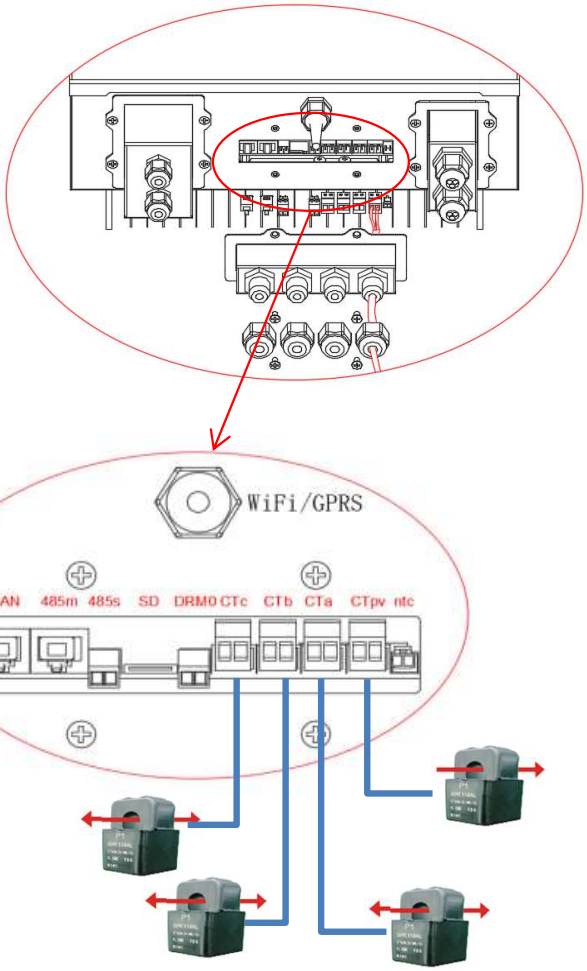


For the extension cable it is recommended to use an 8-pole category 6 STP cable, or a 2x0.5 mm² shielded bipolar alarm cable, in the first case 4 conductors will be connected on one pole of the sensor and the other 4 will be connected on the other pole.
To prevent the conductor wires from breaking, it is recommended to use a cable with flexible and non-rigid conductors.

Unscrew the 4 screws (A) with a screwdriver.

Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).

Route the CT cables through the cable glands on the right side of the cover, connect the positive and negative cables to the counterpart contained in the inverter kit, then insert the counterpart into the corresponding ports on the inverter board.

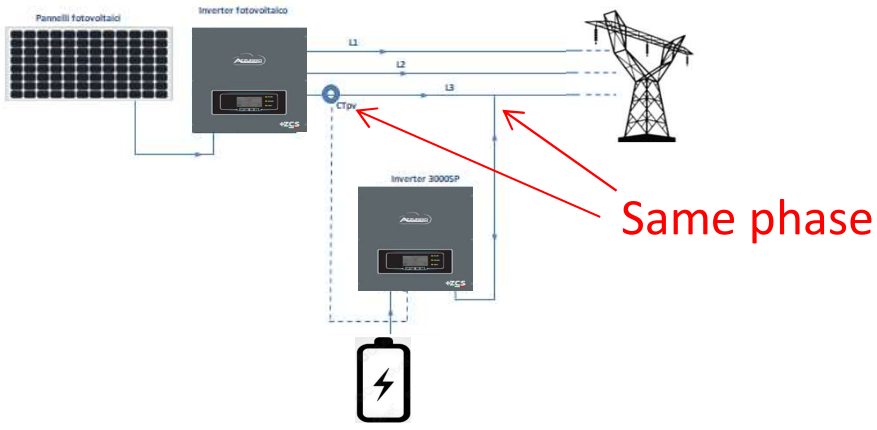


Replace the cover and secure it with the four screws; then tighten the cable glands.

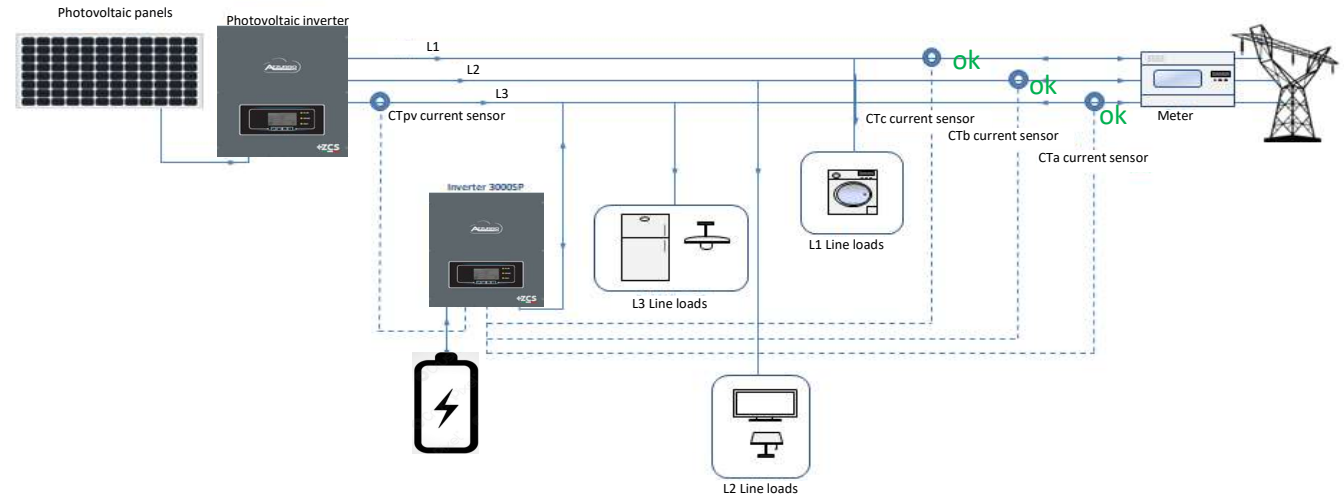
Correctly position the current sensors (CT):

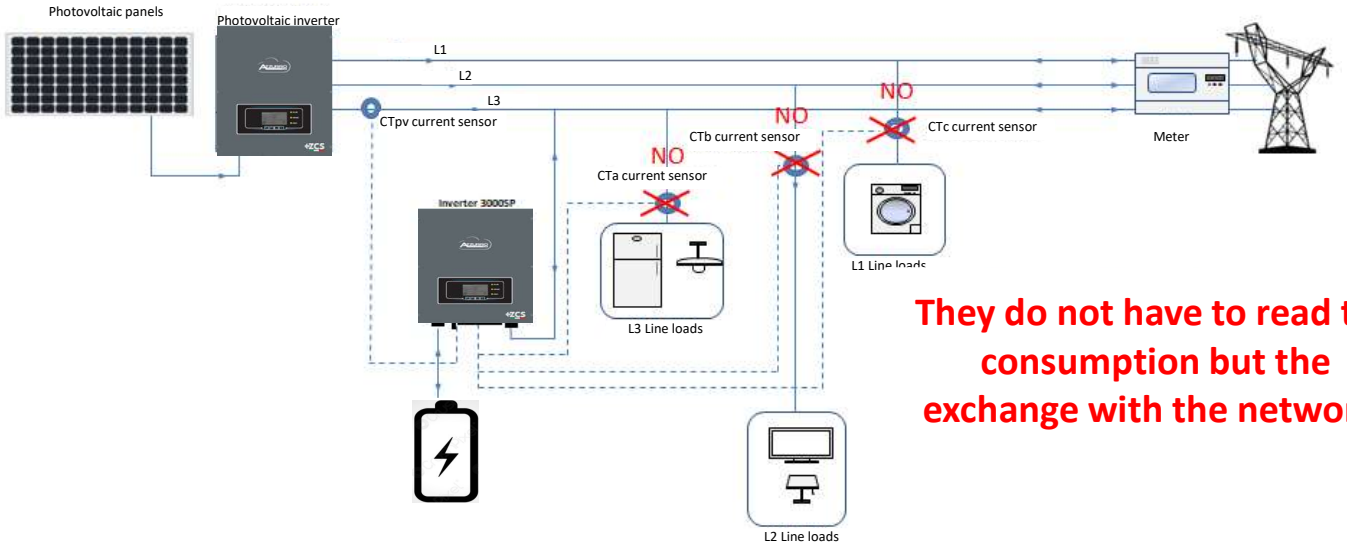
Note: The direction of the CTpv is independent of the installation.

- **CTpv** (measures the photovoltaic production).
  It must be positioned on the phase cable coming out from the photovoltaic inverter (AC side) on the same phase where the storage was installed.



- **CTa, CTb, CTc** (measures the current exchanged with the grid).
  a) Position the **CTa** sensor on the same phase where the storage inverter is installed.
  b) Position the **CTb** and **CTc** sensors on the other two phases.
  c) Each sensor must be positioned at the output of the import/export meter so that all the incoming and outgoing power flows can be read.





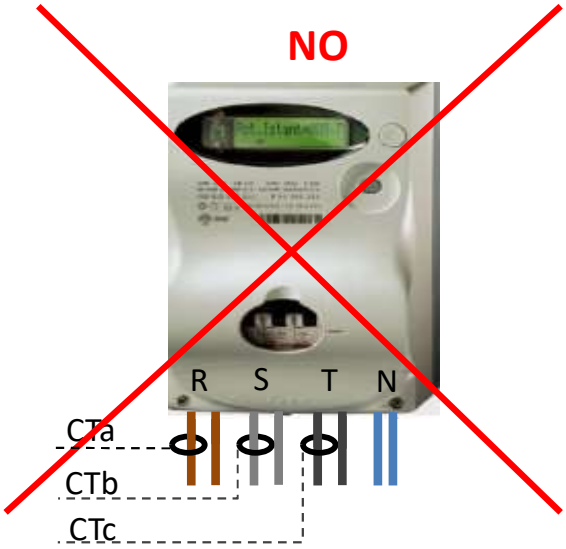
They do not have to read the consumption but the exchange with the network.

Each sensor must include all phase cables entering or exiting from the meter.

OK

OK

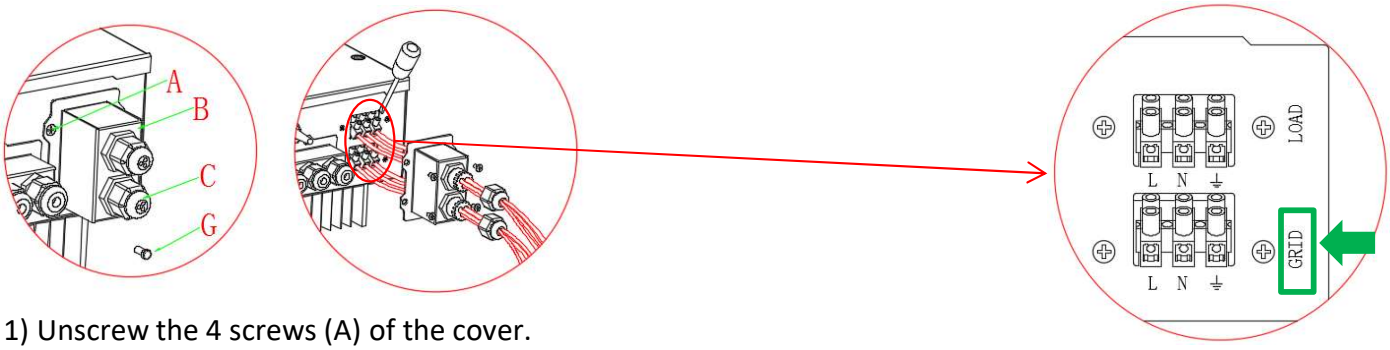
NO



Replace the waterproof cover and secure it with the four screws; then tighten the cable glands.

The direction of the CTa is independent of the installation, and is recognised by the system during the first start-up.

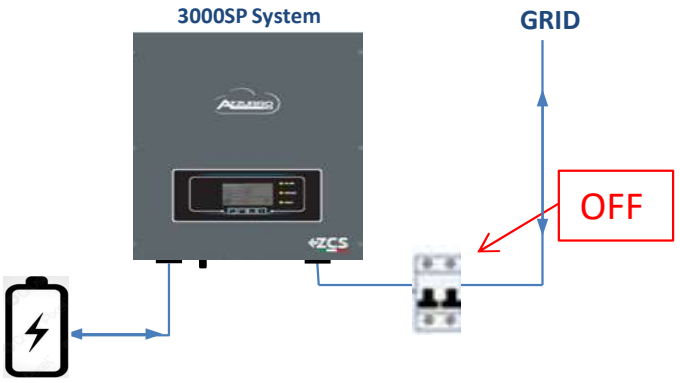
13. CONNECTING THE AC - GRID POWER CABLES



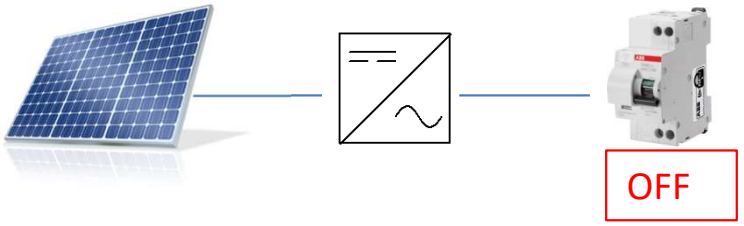
1) Unscrew the 4 screws (A) of the cover.
2) Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).
3) Pass the AC cable through the cable gland (C), and connect the phase, neutral and ground cables to the **GRID** terminal block.

14.1 INITIAL SET UP PROCEDURE OF THE 3000SP SYSTEM

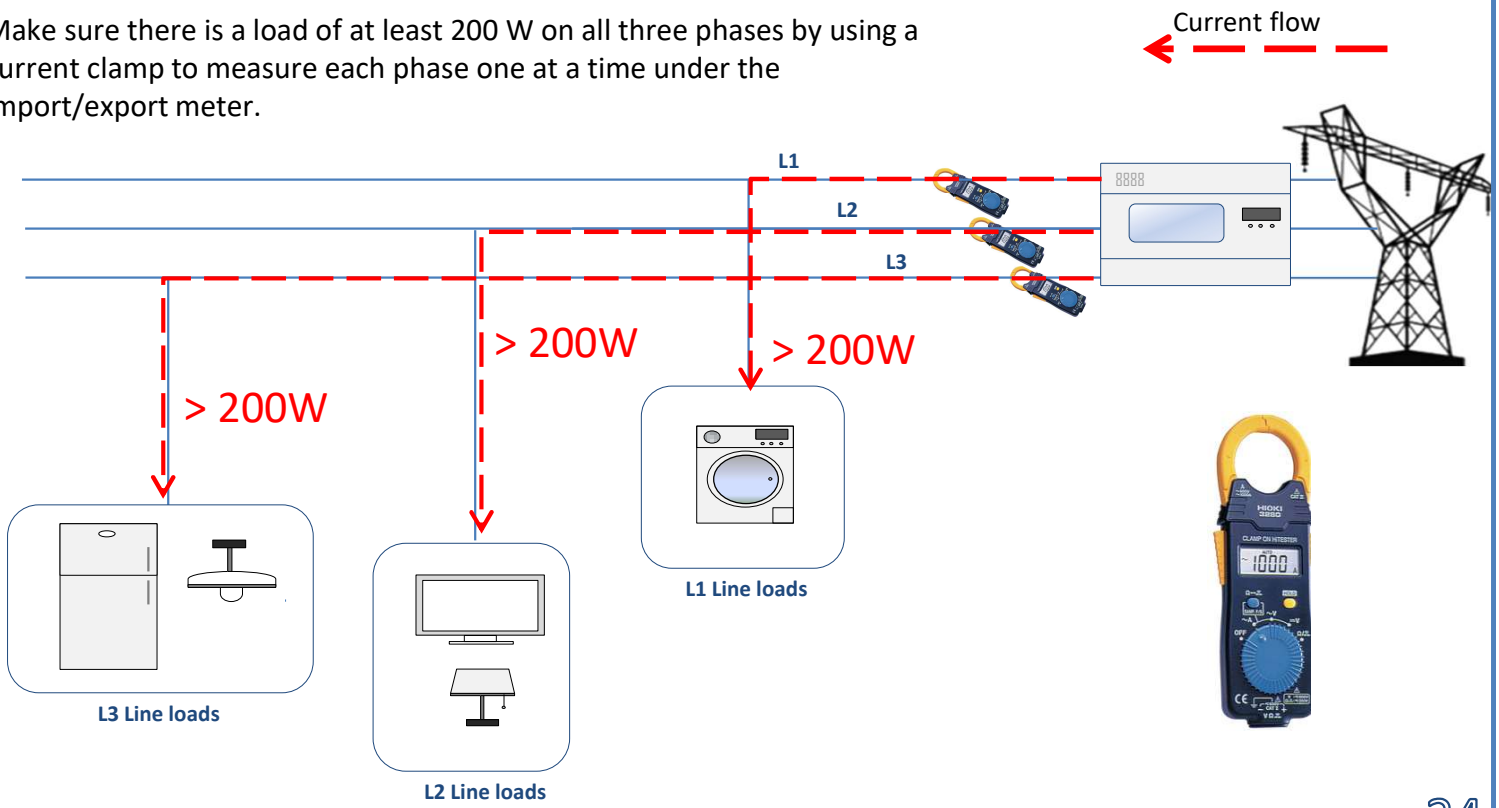
Make sure that the AC circuit breaker of the 3000SP system is open and that no AC voltage is present at the ends of the 3000SP.



Make sure the PV system is not producing power on any phase where the PV system is connected, then open the AC circuit breaker dedicated to the PV inverter to verify that no power is being produced.



Make sure there is a load of at least 200 W on all three phases by using a current clamp to measure each phase one at a time under the import/export meter.



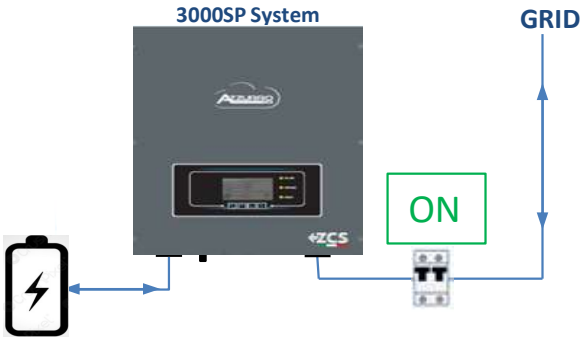
Turn on the batteries:

To turn on **Pylontech** batteries: bring the switch on the front of **all the batteries** to the ON position.

Press the red SW button of **a single** battery for one second, the internal contactor will close automatically.

In case of **WeCo** batteries, press the POWER button of each battery for 1 second, the RUN LED will turn on and the internal contactor will close automatically.

Close the AC circuit breaker of the 3000SP system so that it is supplied with AC voltage. The inverter will turn on.



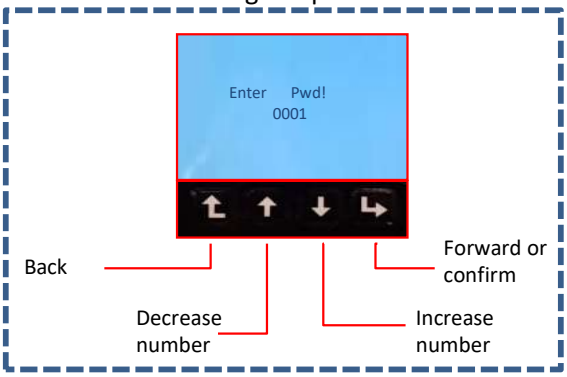
14.2 INITIAL SET UP PROCEDURE OF 3000SP SYSTEM - FREEZING OF CURRENT SENSORS

The procedure for freezing the current sensors is available from firmware version 2.00 of the Service Code onwards; in the event of lower Service Codes, contact technical support to receive the updated firmware.

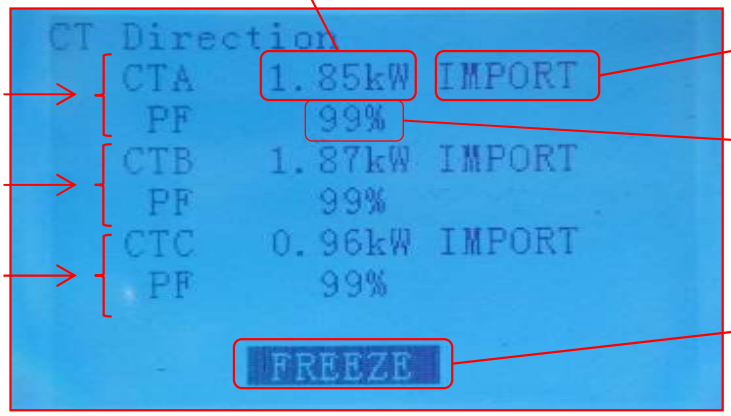
To perform the freezing operation, follow the instructions below:

"Password 0001"

NOTE: Info for writing the password



Power read by CTa



CTa info

CTb info

CTc info

Direction of power flow:
•IMPORT → from grid to utility
•EXPORT → from utility to grid

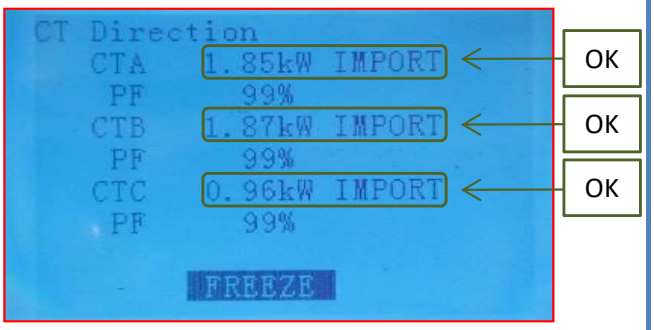
Phase shift between voltage and current

Indicates the status of the current sensors:
- UNFREEZE → direction not blocked (at each system start, the direction depends on the direction of the first current flow).
- FREEZE → direction blocked (sensors keep the same direction at each start up).

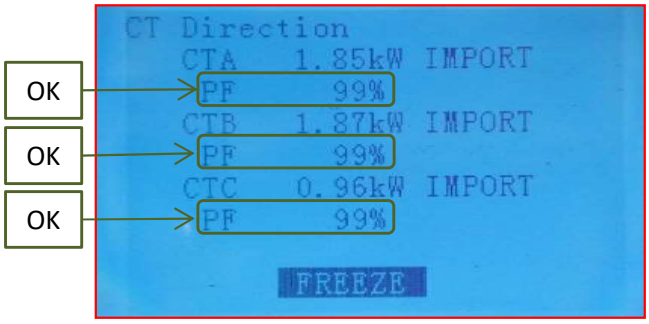
Checks to be carried out:

Make sure that the power consumption is greater than 800W on the CTA, CTB and CTC phases by checking the values on the display; also make sure that IMPORT is present on each of the three phases.

NOTE: If not, increase the consumption until the required condition is met.

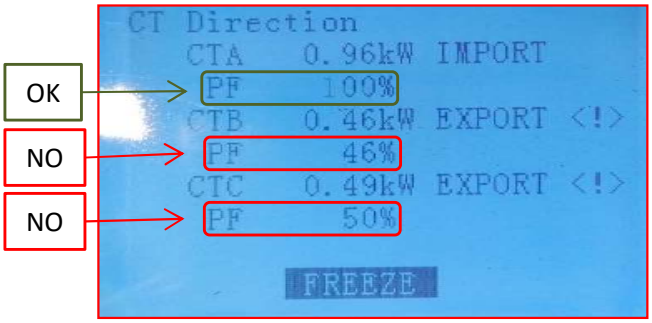


If each sensor has been correctly positioned on its reference phase, the **PF** value (phase shift between voltage and current) will be greater than 90% on all three phases.



Otherwise, the value will be around 50% and an **alarm will be signalled** **< ! >**

The sensors or the terminals inserted in the inverter's terminal board will need to be moved until the value of the Power Factor takes on the correct values.



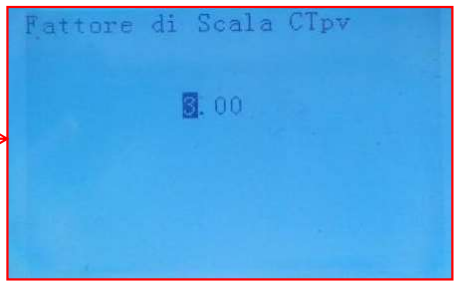
Block the CTs by pressing the arrow ↑ so that the word **FREEZE** appears at the bottom and then confirm with the fourth button ↳

If the required conditions cannot be checked, please contact technical support for assistance

14.3 INITIAL SET-UP PROCEDURE OF THE 3000SP - CTpv SETTINGS AND PHOTOVOLTAIC START UP

↑ ↳ **1.Settings** "Password 0001"

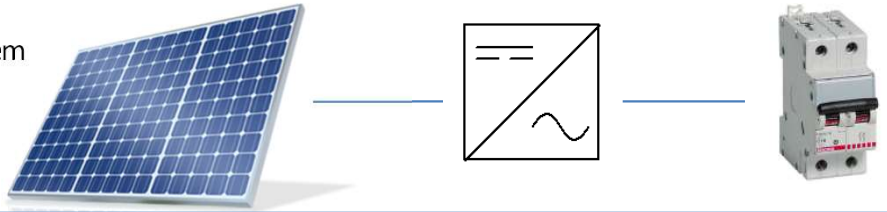
↓ ↳ **14.CTpv Scale Factor**



NOTE: The CTpv scale factor is the multiplying coefficient of the power value read by the CTpv sensor on the phase in which it is installed.
This value is set to 1 by default and can be modified to multiply the power value read by the sensor.

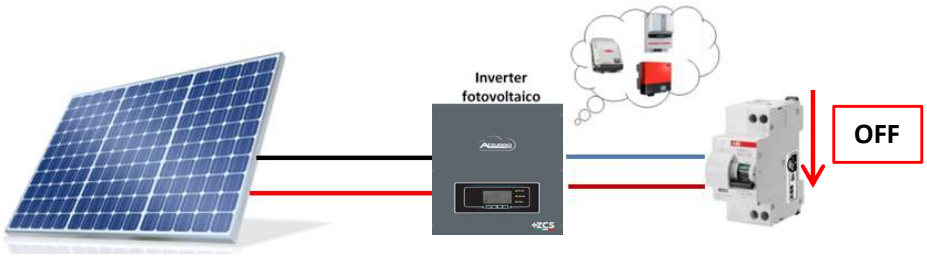
Scale Factor:
1.00 → Single-phase configuration
3.00 → Three-phase configuration

Turn on the photovoltaic system

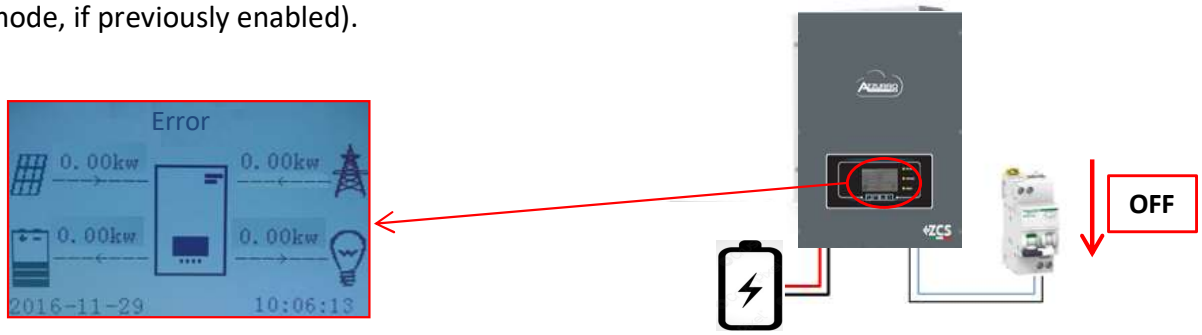


To carry out the check, it is necessary to:

1) Switch off the photovoltaic system.

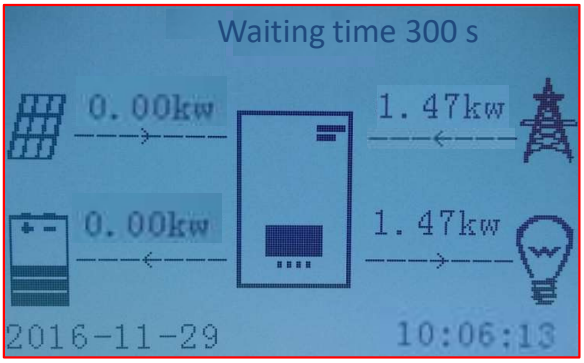


2) Lower the switch of the circuit breaker, the 3000SP system will remain on but will go into error due to no AC power supply
(or in EPS mode, if previously enabled).

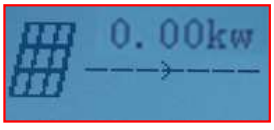


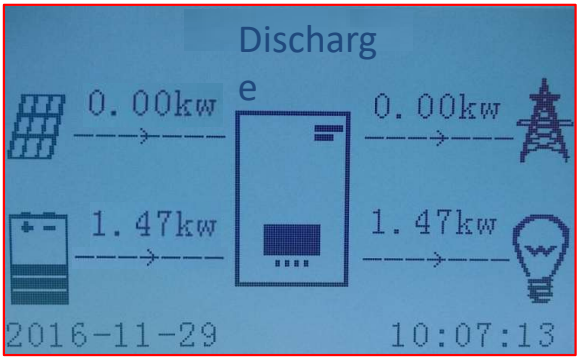
4) Power up the 3000SP by flicking the AC switch up.

5) Check that the display shows a withdrawn power value equal to the absorbed power value which can be measured by placing a current clamp under the import/export meter.

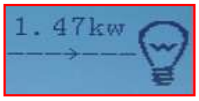


6) Check that the PV generation value shown on the screen is equal to zero.



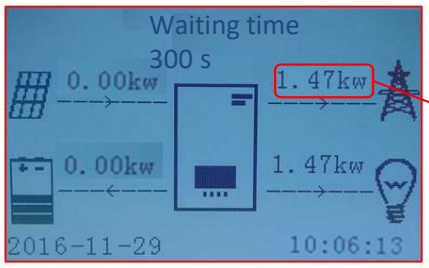


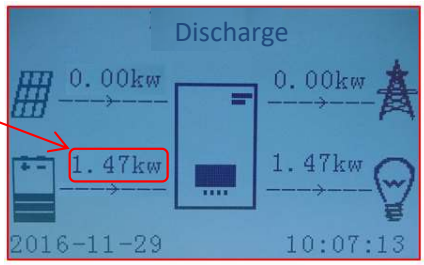
7) Once the countdown is over, the batteries will start to deliver power according to the availability towards the utility, trying to reset the consumption from the grid.



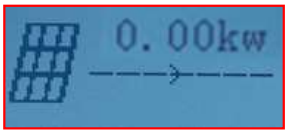
Check that the value of the consumption remains constant* as the power supplied by the battery increases during discharge.

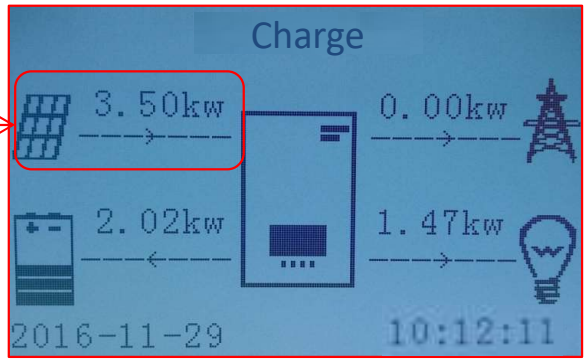
8) The power taken from the grid should decrease by an amount equal to the power supplied by the battery.





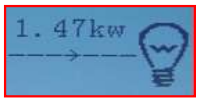
The photovoltaic system remains at zero.



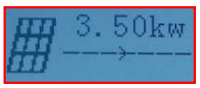


9) Once the photovoltaic system has been activated, check that:

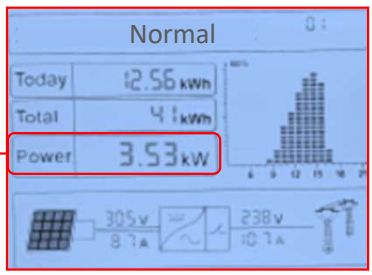
The value of consumption remains constant as the photovoltaic power increases.



Depending on the photovoltaic production, the system will work according to the modes described in Chapter 6.

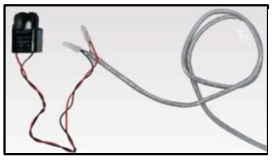


10) Compare the value of the photovoltaic power shown on the storage inverter's display with that indicated by the photovoltaic inverter, making sure that they are almost equal.



* Check that the power of the loads in use does not change:
- Heat pump or pump → load variable over time
- Light or Hairdryer → load constant over time

Note: if the four conditions above are not met, check the positioning of the CTs



16. CHECKING THE SET PARAMETERS

To check whether the parameters set are correct, enter “System Info” on the display menu and check the data, especially those highlighted.

System Info (1)

Serial number: ZE1ES330J28307
Software version: V2.00
Hardware version: V1.00
RS485 address : 01

- *Serial number of the machine*
- *Software version installed*
- *Hardware version*
- *Communication address (enter a value of “01” for monitoring with Wi-Fi)*

System Info (2)

Country: CEI-021 Internal
Service Code : V2.10
EPS: Enable
Working mode : Automatic mode

- *Country code indicating the current legislation*
- *Firmware version installed*
- *Information on EPS mode and start-up time*
- *Information on operating mode (“Automatic Mode” for standard operation)*

System Info (3)

Logic Interface: Disabled
Set PF time:
DFLT: 0.000s SET : 0.000s
Set QV time:
DFLT: 3.0s SET : 3.0s
Power Factor : 100%

- *Information on DRMs0 mode (to enabled only for Australia)*
- *Response delay in frequency*
- *Information on DRMs0 mode (to be enabled only for Australia)*
- *Response delay in frequency*

System Info (4)

CTpv scale factor: 1.00
CT Direction: Frozen

- *Multiplying coefficient of the PV power value read by the CTpv sensor*
- *CT direction status*

Pylontech

Weco 4K4 / 4K4PRO

Weco 5K3

Azzurro ZSX5000

	Pylontech	Weco 4K4 / 4K4PRO	Weco 5K3	Azzurro ZSX5000
Batterie-Info (1)				
Battery type:	Pylon	WeCoHeSU V0. 3. 54	WECO628	AZZURRO LVZSX5000
Battery capacity:	50 Ah	86 Ah	100 Ah	100 Ah
Depth of Discharge:	80 % (EPS) 80 %	80 % (EPS) 90 %	80 % (EPS) 90 %	80 % (EPS) 90 %
Max charge current(A)	BMS : 25.00A SET : 65.00A	BMS : 65.00A SET : 65.00A	BMS : 65.00A SET : 65.00A	BMS : 50.00A SET : 65.00A
Batterie-Info (2)				
Overvoltage threshold:	54.0 V	59.3 V	59.3 V	59.3 V
Max charge threshold(V)	53.2 V	58.4 V	58.4 V	58.4 V
Max discharge current(A)	BMS : 25.00 A SET : 65.00 A	BMS : 65.00 A SET : 65.00 A	BMS :65.00A SET : 65.00 A	BMS :50.00A SET : 65.00 A
Min. discharge voltage:	47.0 V	48.0 V	48.0 V	48.0 V

- *Battery model set*
- *Total battery capacity in Ah **
- *Battery Depth of Discharge (DoD and DoD_{EPS})*
- *Maximum charge current in A*
- *Max voltage value (protection)*
- *Max voltage value (charge)*
- *Maximum discharge current in A*
- *Min voltage value (discharge)*

***Note**: if there is more than one battery, the sum of the total capacities will be shown on the display

17. INITIAL SETTINGS - BATTERY PARAMETERS

1.Settings → "Password 0001" → 1.Battery parameters

- 1. Battery type
  - 1.PYLON (PYLONTECH)
  - 4.GENERAL LITHIUM (WECO)
- 2. Depth of Discharge
  - Depth of discharge
  - 50%
  - EPS depth of discharge
  - 80%
- 3. Save *

* After setting the parameters, confirm by moving the cursor to "Save and press

18. INITIAL SETTINGS - COUNTRY CODE

1.Settings

- 4.Set Country
- 6.Enable Country Change*

* Setting to be used only if more than 24 hours have elapsed since the inverter was first switched on or since the previous country change.
Password required 0001.

Select the code corresponding to the current legislation in the installation country (see table below) which can be set using the "Up" and "Down" keys, press "OK" to move to the next character and confirm.

Code	Country
00	Germany VDE4105
01	CEI-021 Internal
02	Australia
03	Spain RD1699
04	Turkey
05	Denmark
06	Greece-Mainland
07	Netherlands
08	Belgium
09	UK G59
10	China

Code	Country
11	France
12	Poland
13	Germany BDEW
14	Germany VDE0126
15	CEI-016 Italy
16	UK G83
17	Greece-Islands
18	UE EN50438
19	IEC EN61727
20	Korea
21	Sweden

Code	Country
22	General Europe
23	CEI-021 External
24	Cyprus
25	India
26	Philippines
27	New Zealand
28	Brazil
29	Slovakia
30	Slovakia SSE
31	Slovakia ZSD
32	CEI0-21 In Areti

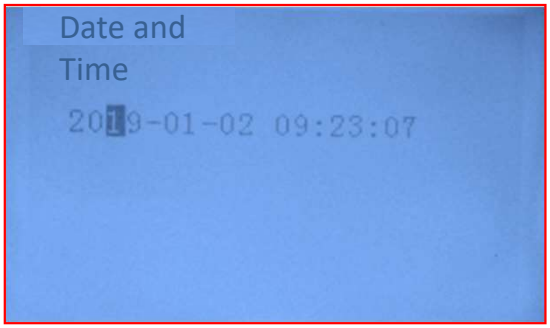
19. INITIAL SETTINGS - DATE AND TIME

1.Settings

- 8. Date and Time

To enter the correct date and time:

- Back
- Increase number
- Decrease number
- Forward or confirm



20.1 EPS MODE

The EPS (Emergency Power Supply) function allows the machine to supply energy to the utility in the event of a power failure.
If the event of no mains power, the storage inverter interrupts its normal operation; if EPS mode is active and correctly wired and configured, part of the loads (indicated as critical or priority loads) connected to the inverter via the LOAD output will be powered by the inverter, drawing energy only from the batteries.

20.2 ACCESSORIES REQUIRED

Double switch contactor with 2 NC contacts + 2 NA contacts

Three-pole AC cable for connecting critical loads to the inverter

20.3 WIRING PROCEDURE

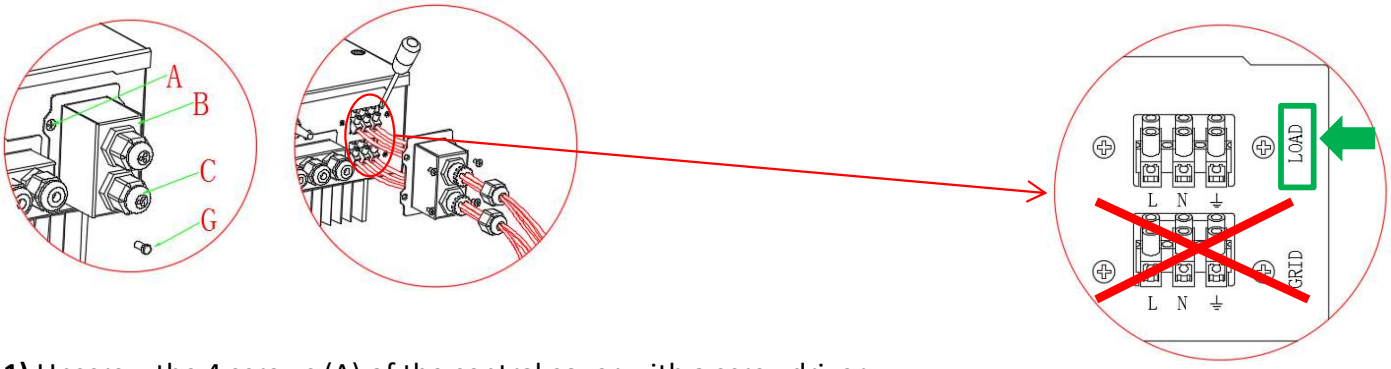
Identify the critical or priority domestic loads: it is advisable to identify the domestic loads strictly necessary during power outages, such as lights, refrigerators or freezers, emergency sockets.

•High power loads (such as ovens, washing machines, heat pumps) may not be supported by the inverter in EPS mode, given the maximum power of 3 kw that can be supplied in EPS mode.

•Loads with high inrush currents (such as pumps, compressors or in general devices driven by electric motors) may not be supported by the inverter in EPS mode, as the inrush current, even if only for a very short period, is considerably higher than the maximum current that can be supplied by the inverter.

•Inductive loads (such as induction plates) may not be supported by the inverter in EPS mode, due to the waveform of these devices.

Connect the phase, neutral and ground cables to the LOAD output located on the lower right side of the inverter.
NOTE: the LOAD output must only be used for connecting the critical load.
The procedure for connecting the power cables to the LOAD output is the same as that for connecting the cables to the GRID output:

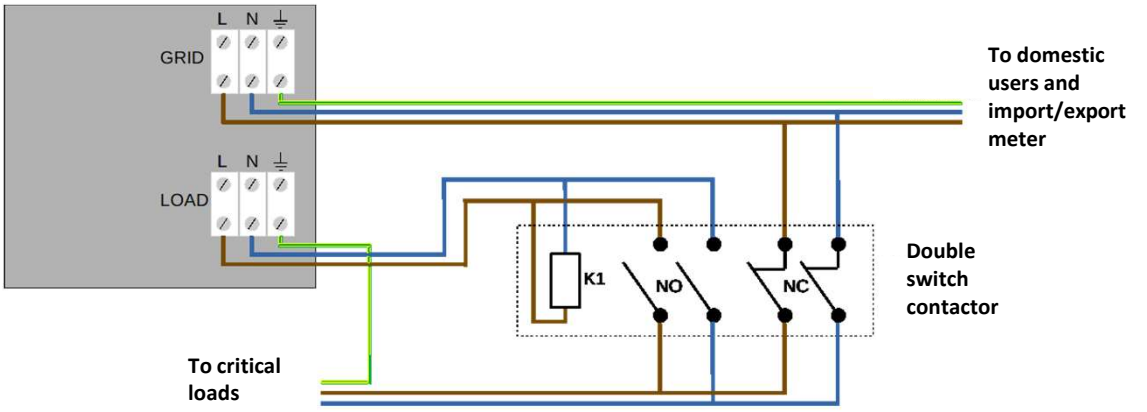


1) Unscrew the 4 screws (A) of the central cover with a screwdriver.
2) Remove the cover (B), loosen the cable gland (C), and then remove the stopper (G).
3) Pass the cable through the cable gland (C) and then connect the conductors on the **LOAD** terminal block.

Install the double switch contactor.

To prevent the current from being fed into the grid, a 2NC + 2NA double-switch contactor) must be purchased and installed correctly.

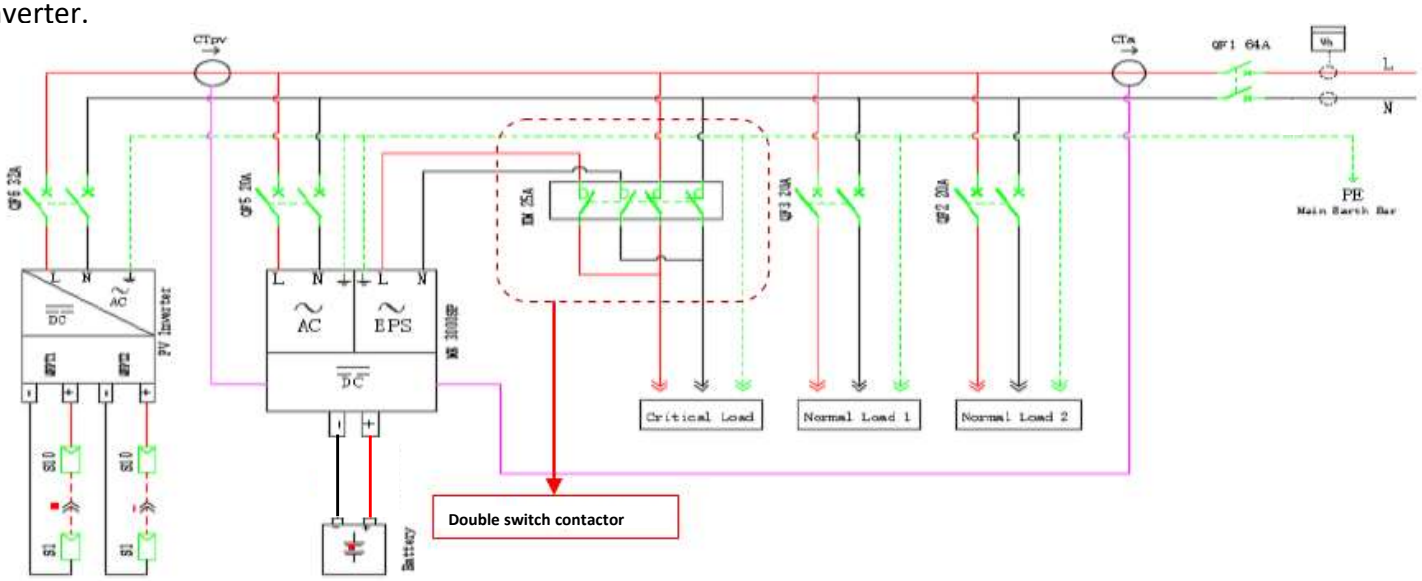
The contactor must be installed as shown in the diagram below, ensuring that during normal operation of the storage inverter the contacts on the grid side are normally closed, while those on the priority load side are normally open.



NOTE: For the conditions described above, in the event of a power failure, the part of the system powered by the inverter's LOAD port behaves like an IT system

If the storage system is to be installed under different conditions from those shown in the diagrams above, contact technical support to check whether it is feasible.

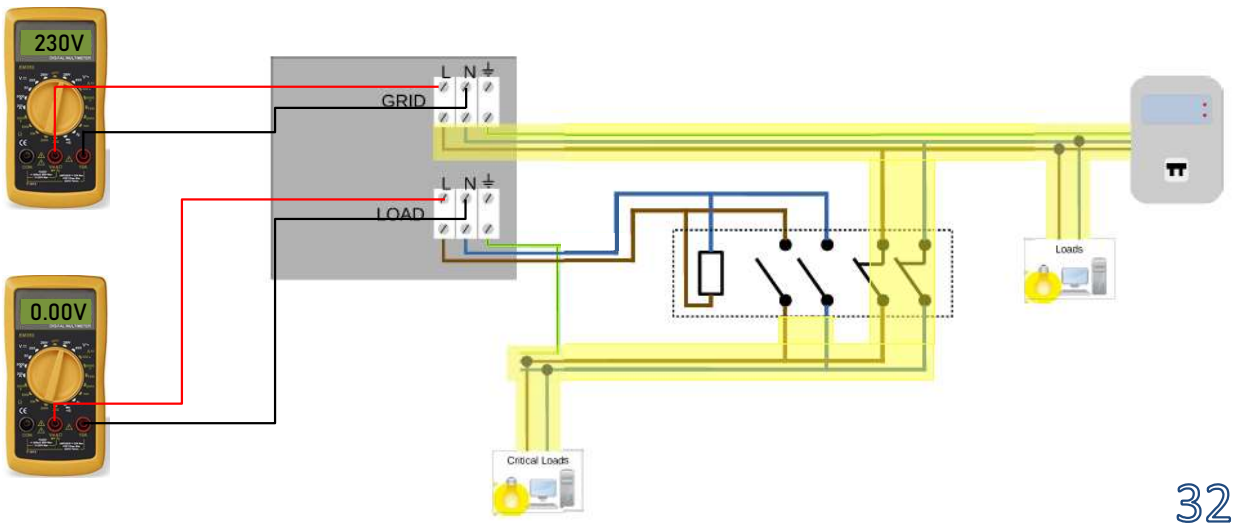
Below is a **complete installation diagram of the system** on which the EPS mode can be activated. In particular, the diagram shows the double switch-over contactor and the relative connections with the electrical system and storage inverter.



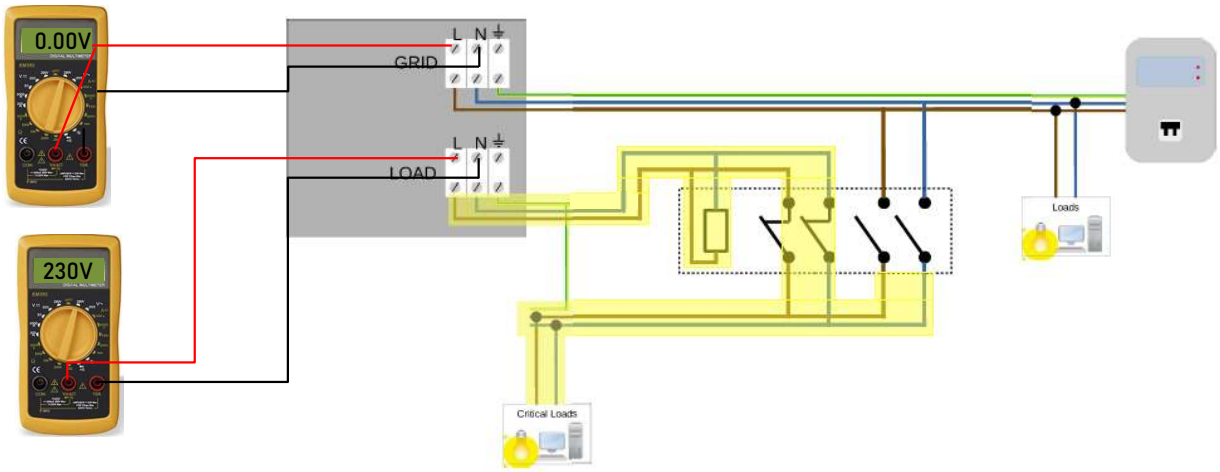
20.4 OPERATING MODE

If the alternating voltage supplied by the grid is present (normal operating condition), both the standard loads of the system and the critical loads are supplied by the power grid. This operation is shown in the figure below.

It should also be noted that the branch between the LOAD output and the double switch contactor is not energised.



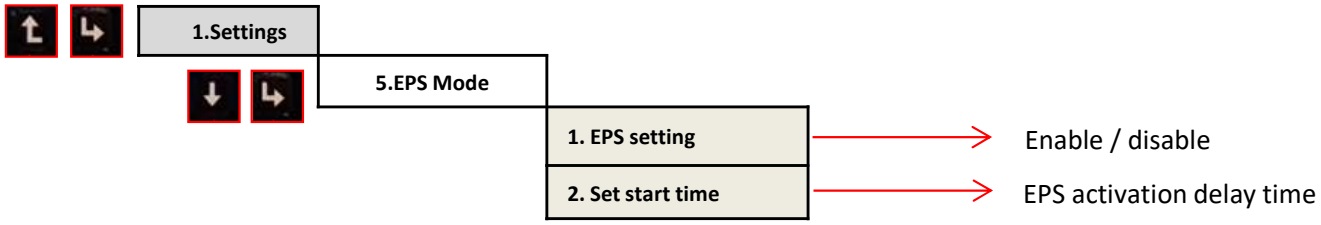
In the event of a **power blackout**, the alternating voltage supplied by the grid will be lost; this condition will activate the internal switches of the storage inverter which, once the set activation time has expired, will supply an alternating voltage of 230V with a frequency of 50 Hz on the LOAD output. By energising the coils of the double switch contactor, this voltage will cause the normally open switches to close, and the normally closed switches to open (to prevent current being fed back into the grid, into the photovoltaic inverter and into the GRID terminal block of the storage system which would attempt to reconnect to the grid by deactivating the EPS function), thus supplying energy only to critical loads according to the conditions and availability of the batteries.



Note: During operation in EPS mode, if the batteries are sufficiently charged, the system will be able to deliver a maximum alternating current equal to:

- *System with one Pylontech battery: 5 A (1,100 W)*
- *System with two Pylontech batteries: 10 A (2,200 W)*
- *System with three or more Pylontech batteries: 13 A (3,000 W)*
- *System with one or more WeCo batteries: 13 A (3,000 W)*

20.5 PROCEDURE FOR SETTING FROM THE DISPLAY



21. SELF-TEST

Before running the self-test make sure the correct country code has been set!!!

Note: the STD self-test is the same as the Fast self-test except that the waiting times are longer (about 45 minutes for the standard self-test compared to 12 minutes for the FAST self-test).
At the end of the self-test, all eight thresholds will be displayed with the relative values and times set and detected.