SCAN ME
FOR INSTALLATION
TUTORIALS & DOCUMENTATION

QUICK GUIDE
HYD3000-HYD6000-ZP1 HYBRID INVERTER

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

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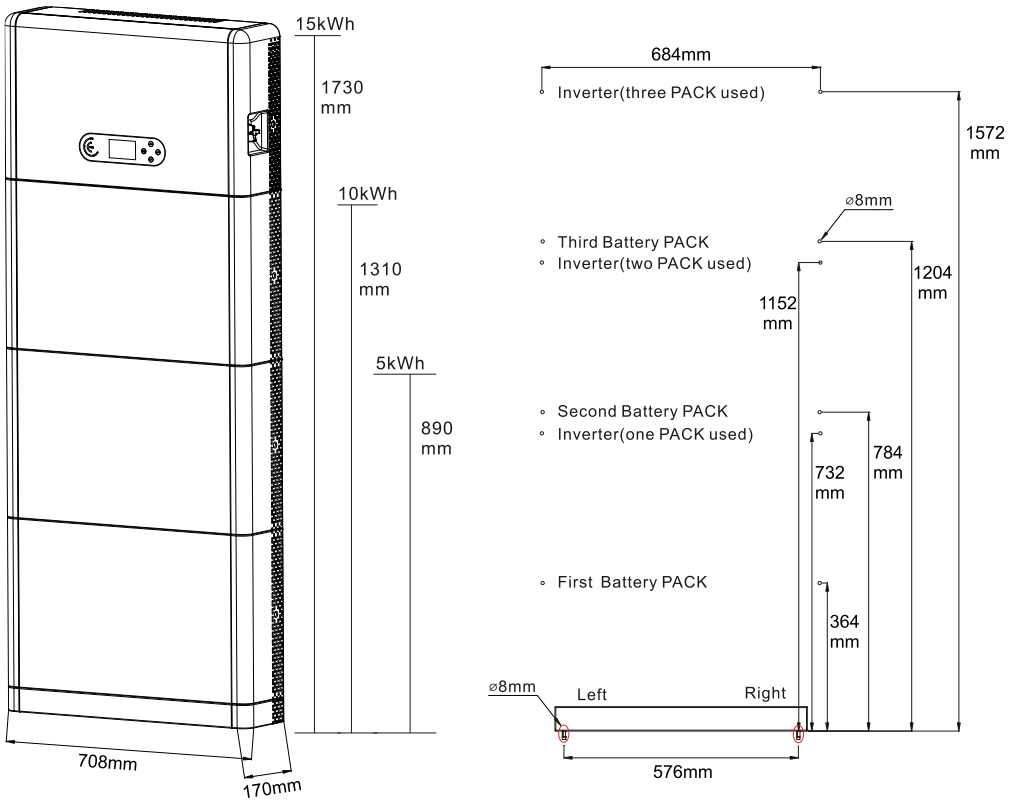
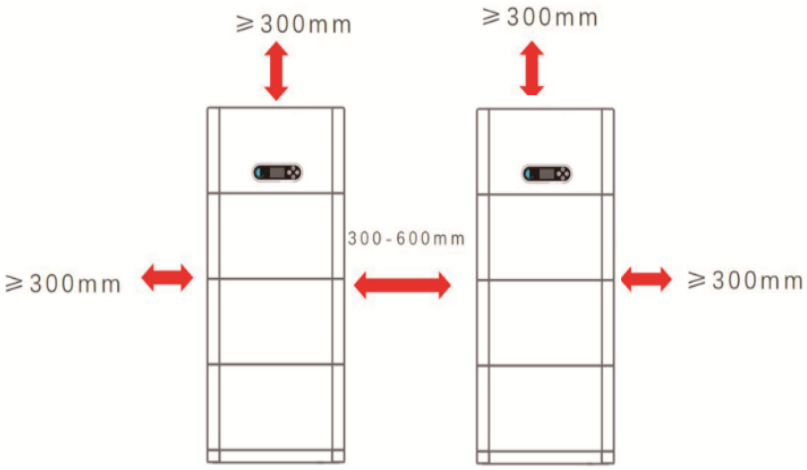
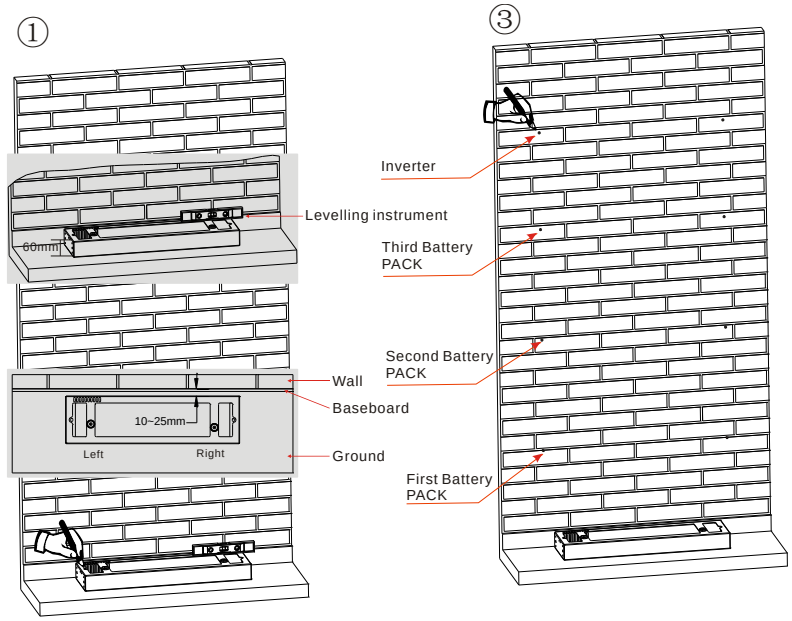
Dimensions and distances to be observed:

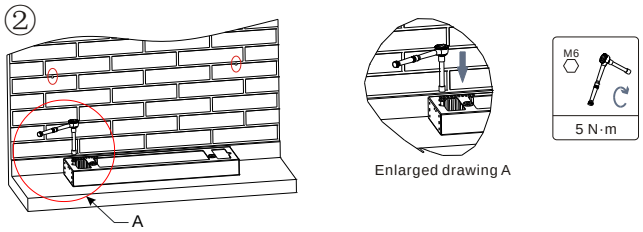


To guarantee adequate room for both installation and effective heat dissipation, make sure there is ample space around the 1PH HYD3000-HYD6000-ZP1 residential energy storage inverter.



Installing the base:





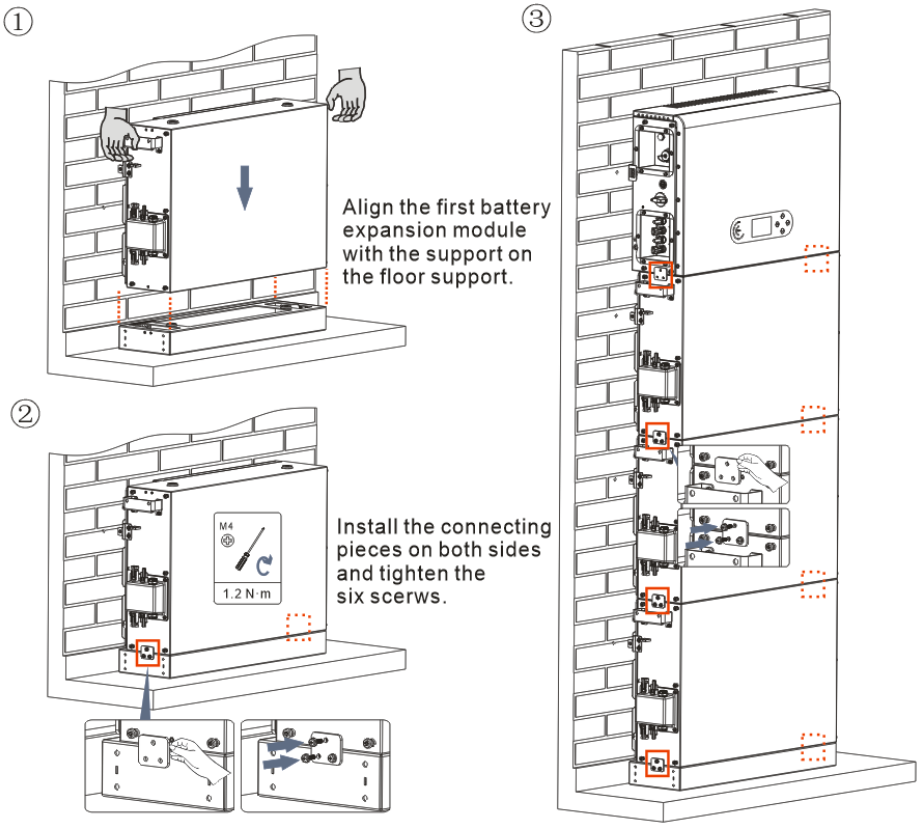
If holes cannot be drilled on the ground,the battery expansion modules must be secured on the wall

Step 1: Place the base against a wall, leaving a gap of 10-25 mm between the base and the wall. Adjust the position of the holes using a level and mark them with a felt-tip pen.

Step 2: To install the base, remove it, and drill the holes using an impact drill with an 8 mm diameter bit, drilling to a depth of 60-65 mm. Tighten the expansion screws to firmly secure the base in place.

Step 3: Use a felt-tip pen to mark the holes for attaching the battery modules and inverters, following the dimensions shown in the figure below.

Installing the modules:

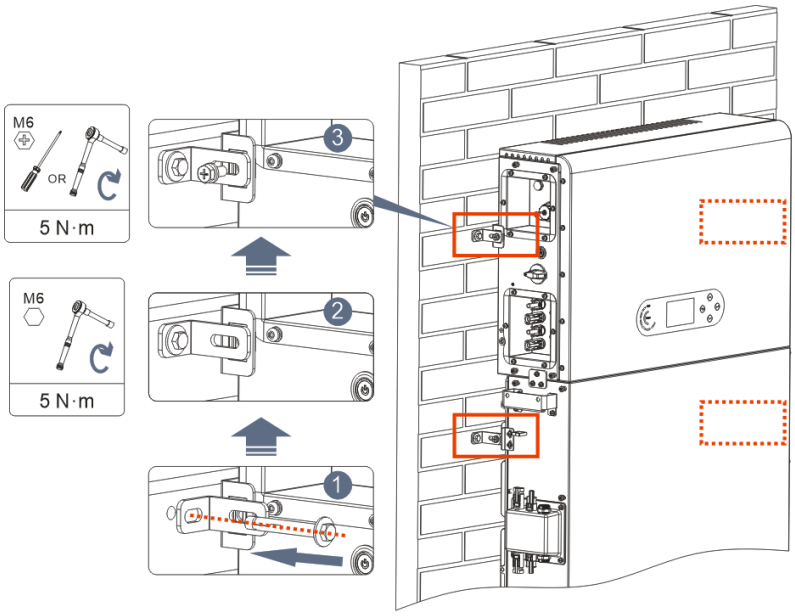


Step 1: Align the first battery module to the base.

Step 2: Install the connectors on both sides and tighten the six screws using a cross screwdriver.

Step 3: Install the remaining battery modules and inverter from bottom to top. (Before installing the next module, ensure that the screws on the side connectors of the previous module are firmly tightened).

Installing the support panel:



Step 1: Use an impact drill (φ 8 mm, depth 60-65 mm) to drill the holes. Reposition and drill the holes in case of significant deviation.

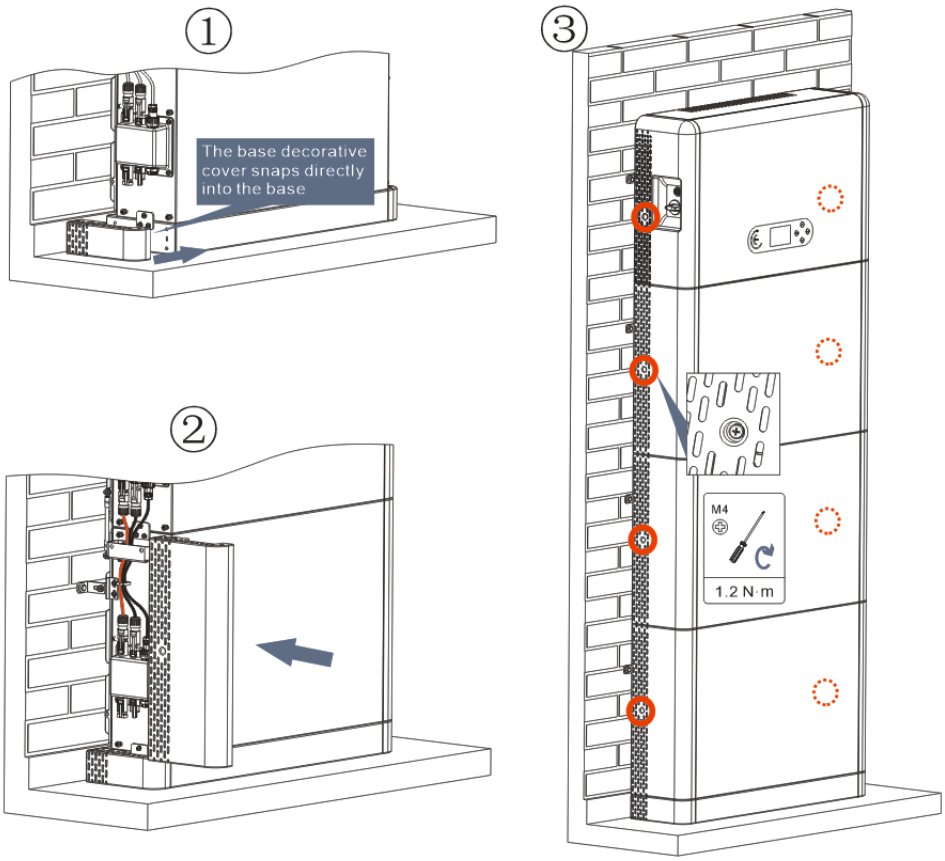
Step 2: Install support panel B on the wall and fasten the expansion bolt.

Step 3: Adjust support panel A, making sure that the holes on both panel A and B are perfectly aligned.

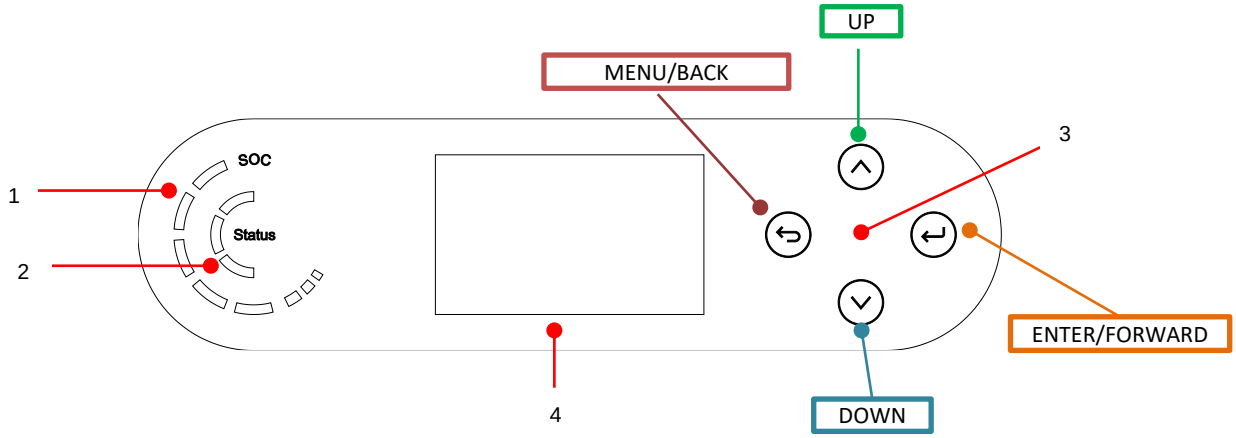
Step 4: Connect and secure panel A and B using M6*16 screws.

Installing the cover:

After ensuring the correctness and reliability of the electrical connections, install the outer protective cover and secure it with the screws.



3. DISPLAY & BUTTONS



1	System power indicator	3	Button
2	System status indicator	4	LCD screen

System status	Indicator		
	Blue LED	Green LED	Red LED
On-Grid	On		
Standby (On-Grid)	Intermittent		
Off-Grid		On	
Alarm			Intermittent

Icon	Battery capacity
	80-100%
	60-80%
	40-60%
	20-40%
	0-20%

From the main menu, press "Menu/Back" to enter the main menu.

Main menu
1. Basic settings
2. Advanced settings
3. Statistics
4. System Info
5. Event list
5. Software Update
7. Real-time battery info

1. Language
2. Date and Time
3. Safety parameters
4. Working mode
5. Self-test
6. Config. input Channels
7. EPS Mode
8. Commun. Address. Select.

PWD: 0715

1. Battery parameters
2. Active battery
3. Feed-in limit
4. IV Curve Scan
5. Logic interface
6. Factory reset
7. Parallel settings
8. Bluetooth Reset
9. CT Calibration
10. Set electricity meter
11. Neutral Point Grounding

1. Inverter Info
2. Battery Info
3. Safety parameters
4. Debug info
5. PCU info
6. BMS info

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

PWD: 0715

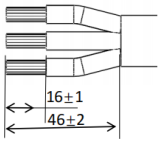
Start Update ...

Statistics:

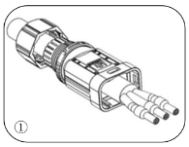
Today	Week	Month	Year	Life Cycle
PV prod.	PV prod.	PV prod.	PV prod.	PV prod.
AutoCon	AutoCon	AutoCon	AutoCon	AutoCon
Export	Export	Export	Export	Export
Consumption	Consumption	Consumption	Consumption	Consumption
AutoCon	AutoCon	AutoCon	AutoCon	AutoCon
Import	Import	Import	Import	Import

5. CONNECTING TO THE GRID

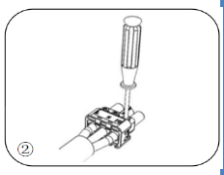
Step 0: Select the suitable cable type and specifications.



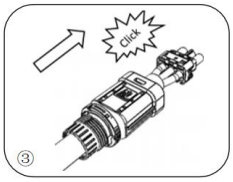
Step 1: Thread the wire through the terminal.



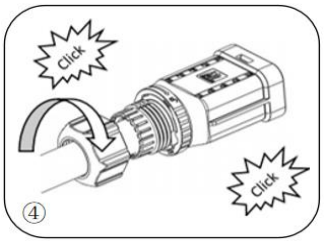
Step 2: Align the wire with the marking, insert it into the hole on the terminal and tighten it.

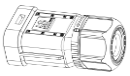


Step 3: Push the terminal forward until a "click" is heard.



Step 4: Connect the attached load terminal to the inverter's load port and push the terminal forward until it clicks into place.



Item	Description		Recommended cable type	Recommended cable specification
	AC Grid	L (U)	Multi-core copper cable for outdoor use	Cross-section area of the conductor: 8 AWG
		N (W)		
		PE (O)		
	LOAD	L (U)	Multi-core copper cable for outdoor use	Cross-section area of the conductor: 8 AWG
		N (W)		
		PE (O)		

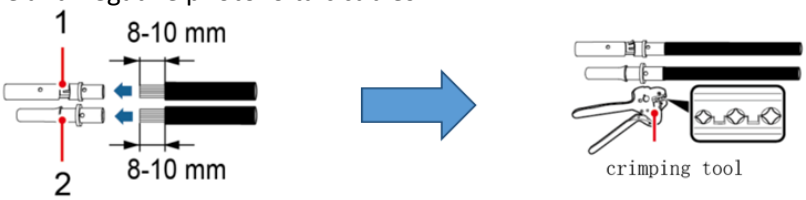
6. PHOTOVOLTAIC CONNECTIONS

Recommended specifications for DC input cables

Cross-sectional area (mm^2)		Outer cable area (mm^2)
Range	Recommended value	
4.0~6.0	4.0	4.5~7.8

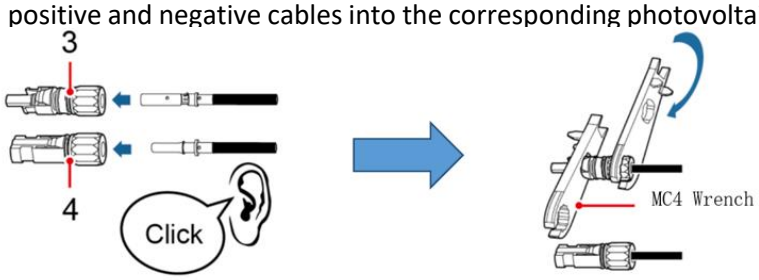
Prepare the positive and negative photovoltaic cables.

1. Positive contact
2. Negative contact

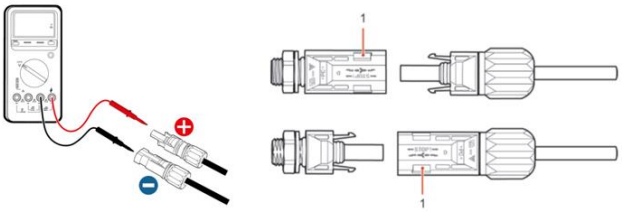


Insert the crimped positive and negative cables into the corresponding photovoltaic connectors.

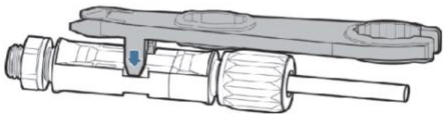
3. Positive connector
4. Negative connector



Make sure that the DC parameters of the strings are acceptable according to the technical specifications given in the datasheet and in the Azzurro ZCS configurator. In addition, **check that the polarities of the photovoltaic cables are correct**.



Before removing the positive and negative PV connectors, make sure that the DC rotary circuit breaker is in the OFF position.



Use a MC4 wrench to disconnect the photovoltaic connectors

ATTENTION Before connecting/disconnecting the strings to the inverter, check that the DC circuit breaker on the side of the inverter is in the OFF position.

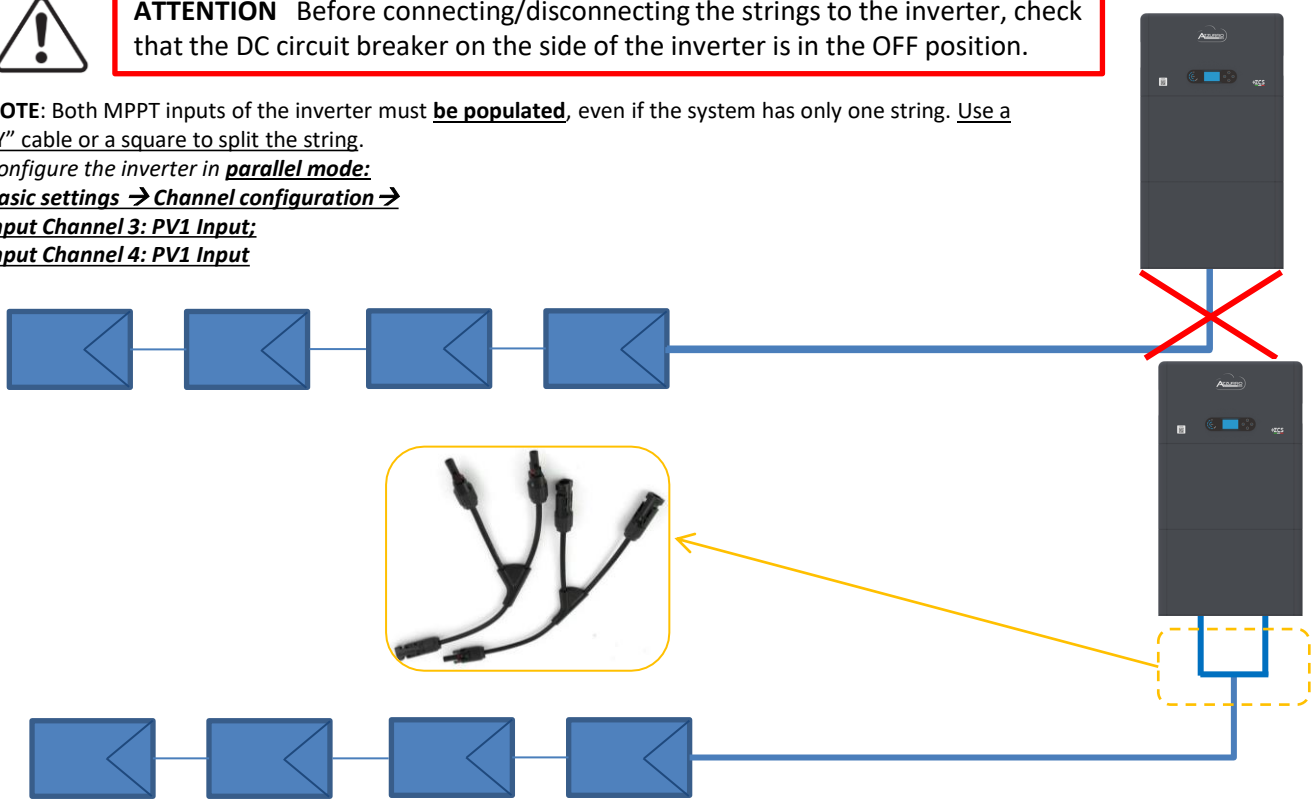
NOTE: Both MPPT inputs of the inverter must **be populated**, even if the system has only one string. Use a "Y" cable or a square to split the string.

Configure the inverter in ***parallel mode:***

Basic settings → Channel configuration →

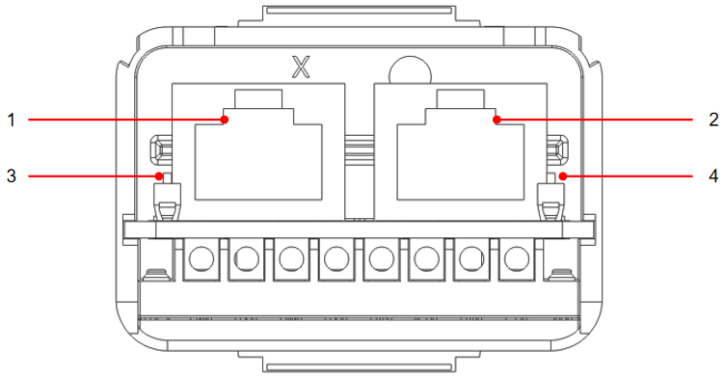
Input Channel 3: PV1 Input;

Input Channel 4: PV1 Input



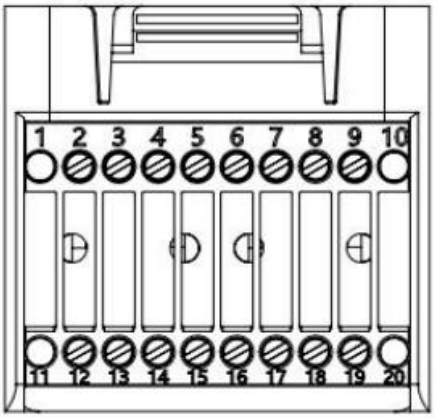
7. COMMUNICATION CONNECTION – COM PORT

Connections for master/slave mode:



Icon	Definition	Function	Note
1	Link Port 1	Parallel Signal Output	Parallel Signal Port (RJ 45)
2	Link Port 0	Parallel Signal Input	
3	Dip switch Link Port 1	Enables and disables the resistor	The selector can be set to 0 (selector UP) or 1 (selector DOWN) A setting of 1 enables the resistor, while a setting of 0 disables it
4	Dip switch Link Port 0		

Port connection of COM communication:



PIN	Definition	Function	Remark
1	N/D	N/D	
2	UC-A	RS485 -A differential signal	Inverter monitoring signal 485
3	UC-B	RS485 -B differential signal	
4	EN+	RS485 + differential signal	Battery signal 485
5	EN-	RS485- differential signal	
6	MET-A	RS485 -A differential signal	Intelligent counter signal 485
7	MET-B	RS485 -B differential signal	
8	CAN-H	CAN high-speed data	CAN battery communication signal
9	CAN-L	CAN low-speed data	
10	N/D	N/D	
11	N/D	N/D	
12	GND	Logical interface signal	(DRMS) Logical interfaces for Australia lower than standard (AS4777), General Europe (50549), Germany (4105)
13	D1/5		
14	D4/8		
15	D2/6		
16	D0		
17	D3/7		
18	CT+	Positive output terminal of current transformer	Current transformer communication signal (CT)
19	CT-	Negative pole of current transformer output	
20	N/D	N/D	

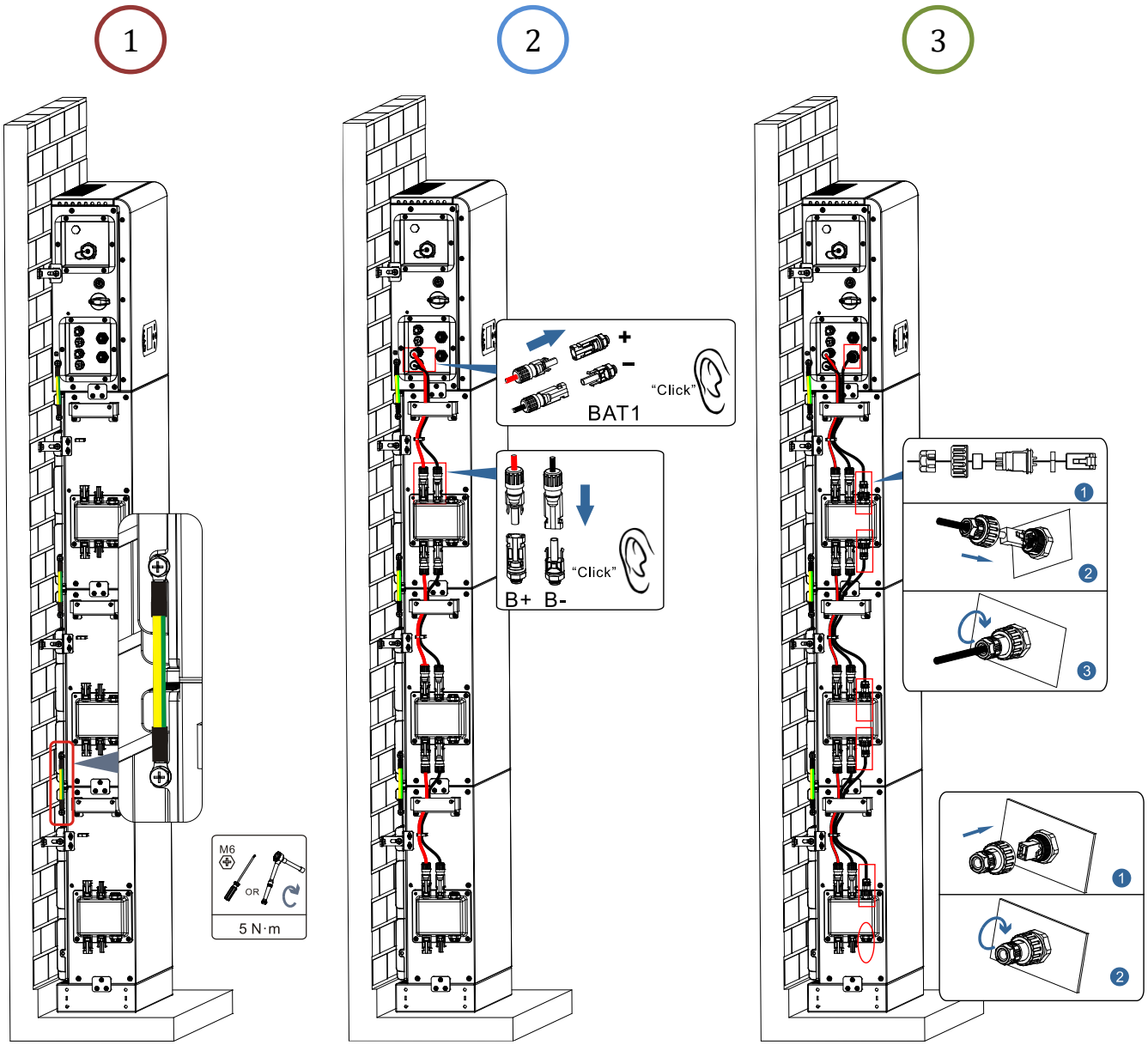
Power connections up to 3 batteries (1 channel):

1 - Connect the **grounding** cables as shown in the figure.

2
- **(BAT +, BAT -)** of channel **BAT 1** of the **inverter** connected in parallel to **(B+, B-)** of **battery module 1**.
- **(B+, B-)** of **battery module 1** connected in parallel to **(B+, B-)** of **battery module 2**.
- **(B+, B-)** of **battery module 2** connected in parallel to **(B+, B-)** of **battery module 3**.

Communication connections up to 3 batteries (1 channel):

3
- **COM 1** of **inverter** → **Link Port IN** of **battery module 1**.
- **Link Port OUT** of **battery module 1** → **Link Port IN** of **battery module 2**.
- **Link Port OUT** of **battery module 2** → **Link Port IN** of **battery module 3**.
- Insert the terminating resistor on **Link Port OUT** of **battery module 3**.



In case of 4 batteries, it is necessary to purchase the extension kit, code **ZZT-ZBT5K-EXT-KIT**.

Power connections up to 4 batteries (2 channels):

1 - Connect the **grounding** cables as shown in the figure.

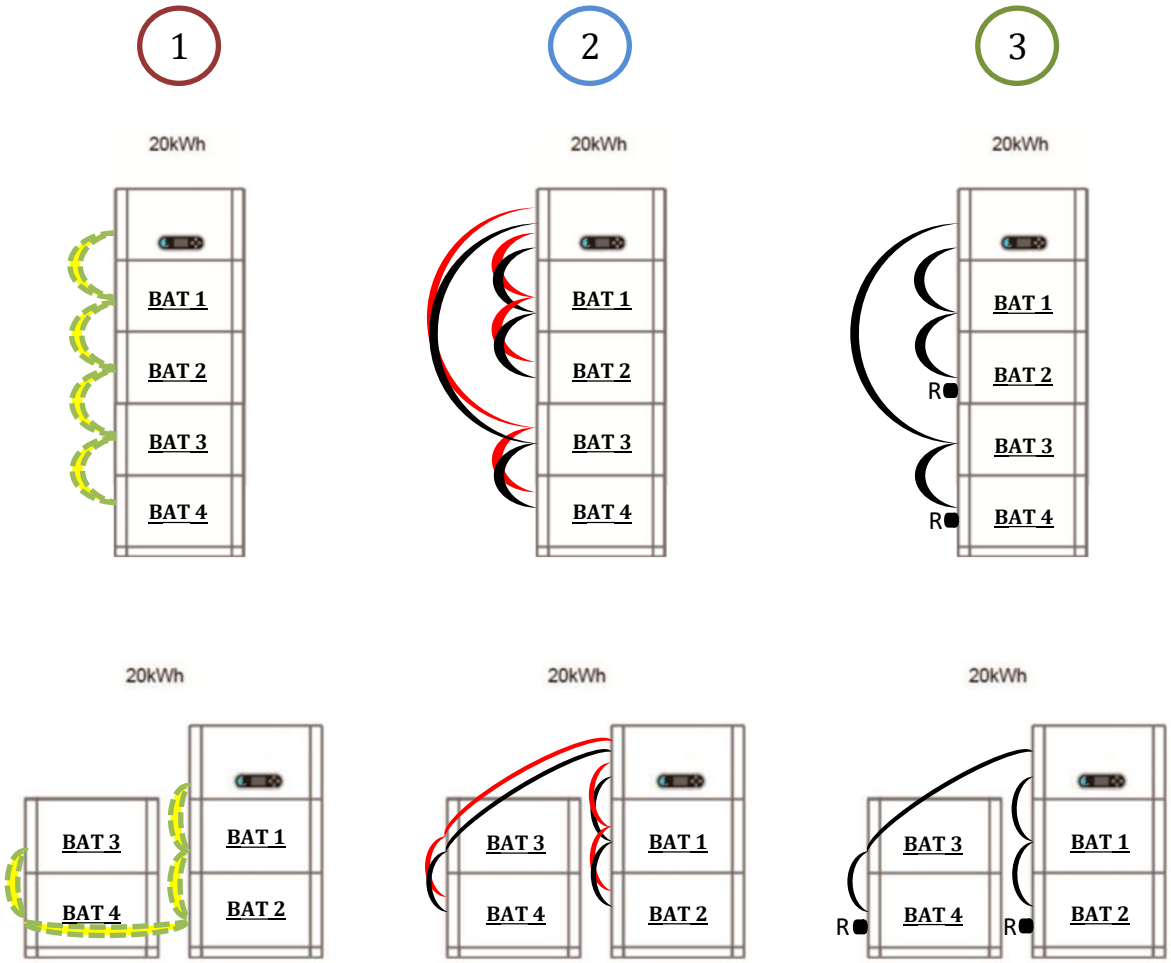
2
- **(BAT +, BAT -)** of channel **BAT 1** of the **inverter** connected in parallel to **(B+, B-)** of **battery module 1**.
- **(B+, B-)** of **battery module 1** connected in parallel to **(B+, B-)** of **battery module 2**.

- **(BAT +, BAT -)** of channel **BAT 2** of the **inverter** connected in parallel to **(B+, B-)** of **battery module 3**.
- **(B+, B-)** of **battery module 3** connected in parallel to **(B+, B-)** of **battery module 4**.

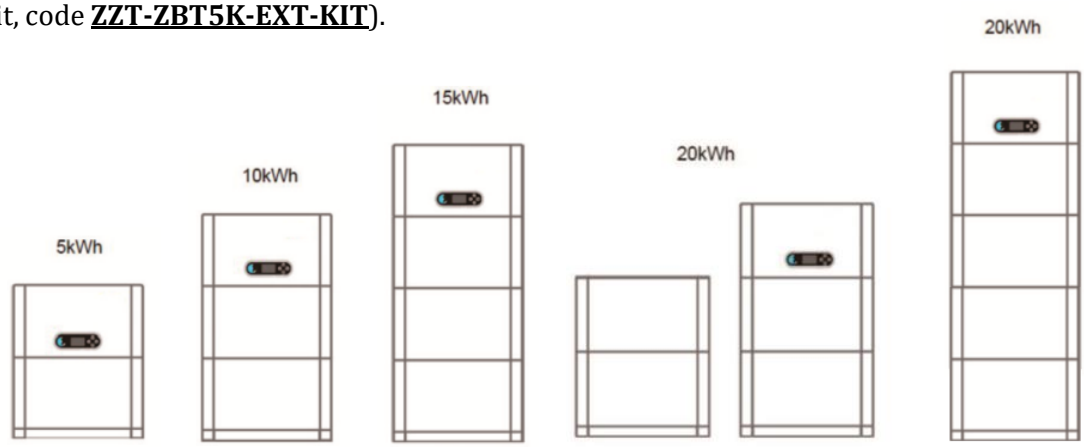
Communication connections up to 4 batteries (2 channels):

3
- **COM 1** of **inverter** → **Link Port IN** of **battery module 1**.
- **Link Port OUT** of **battery module 1** → **Link Port IN** of **battery module 2**.
- Insert the terminating resistor on **Link Port OUT** of **battery module 2**.

- **COM 1** of **inverter** → **Link Port IN** of **battery module 3**.
- **Link Port OUT** of **battery module 3** → **Link Port IN** of **battery module 4**.
- Insert the terminating resistor on **Link Port OUT** of **battery module 4**.



Note: Make sure the cable connections are firmly established.
For systems with a capacity exceeding 15 kWh, the batteries are connected in two independent groups to the inverter's battery input interface.
The battery capacity varies from 5 to 20 kWh (in the case of 4 batteries, it is necessary to purchase the extension kit, code **ZZT-ZBT5K-EXT-KIT**).



When shutting down the system, ALWAYS DISCONNECT THE AC VOLTAGE by opening the designated switch. **NEVER SWITCH OFF the batteries before disconnecting the AC voltage**, and therefore with the storage system connected to the AC grid.

9.1 SETTING PHOTOVOLTAIC CHANNELS

To set the photovoltaic channels:

Basic settings → Channel configuration

When connecting strings in **independent mode**:
- Input channel 3 – PV Input 1
- Input channel 4 – PV Input 2

When connecting strings in **parallel mode**:
- Input channel 3 – PV Input 1
- Input channel 4 – PV Input 1

9.2 SETTING BATTERY CHANNEL

To set 1 battery channel:

Basic settings → Channel configuration

- Input channel 1 – Batt Input 1
- Input channel 2 – Not in use

Advanced settings → 0715 → Battery parameters

- No. of batteries:
Group 1 → (enter the number of batteries installed)
Group 2 → 0

- Battery 1:
Depth of discharge: 80%

To set 2 battery channels:

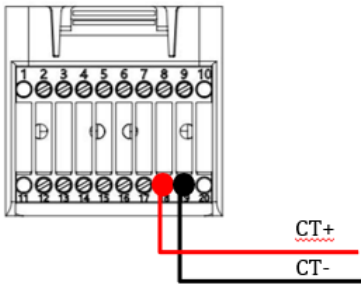
Basic settings → Channel configuration

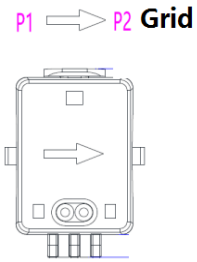
- Input channel 1 – Batt Input 1
- Input channel 2 – Batt Input 2

Advanced settings → 0715 → Battery parameters

- No. of batteries:
Group 1 → (enter the number of batteries installed)
Group 2 → (enter the number of batteries installed)

- Battery 1:
Depth of discharge: 80%
- Battery 2:
Depth of discharge: 80%





PIN	Definition
19	CT- (black/yellow)
18	CT+ (red)

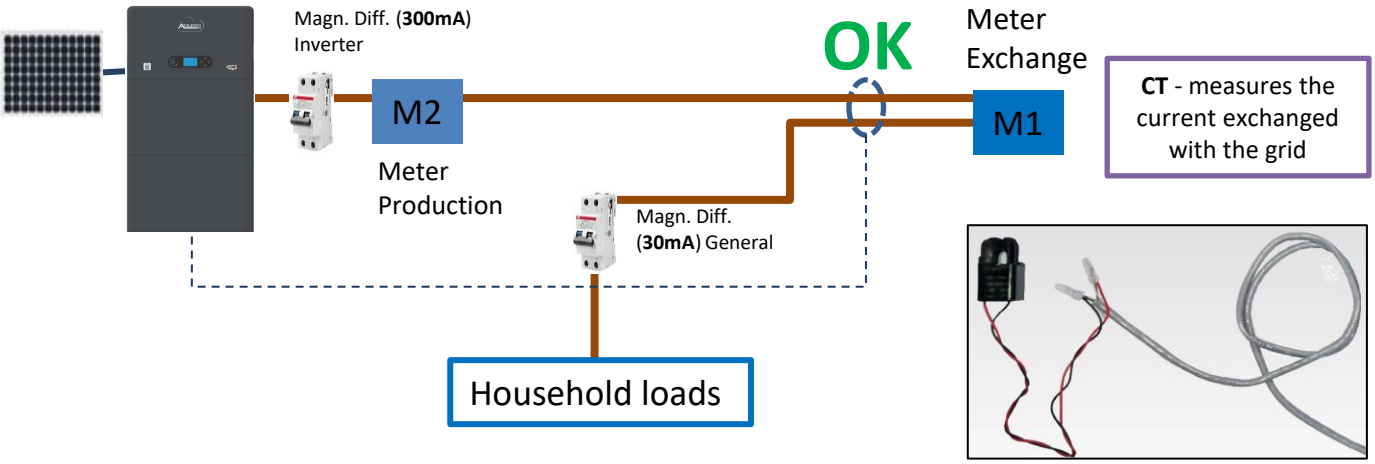
Use for distances of less than 50 m between the inverter and CT

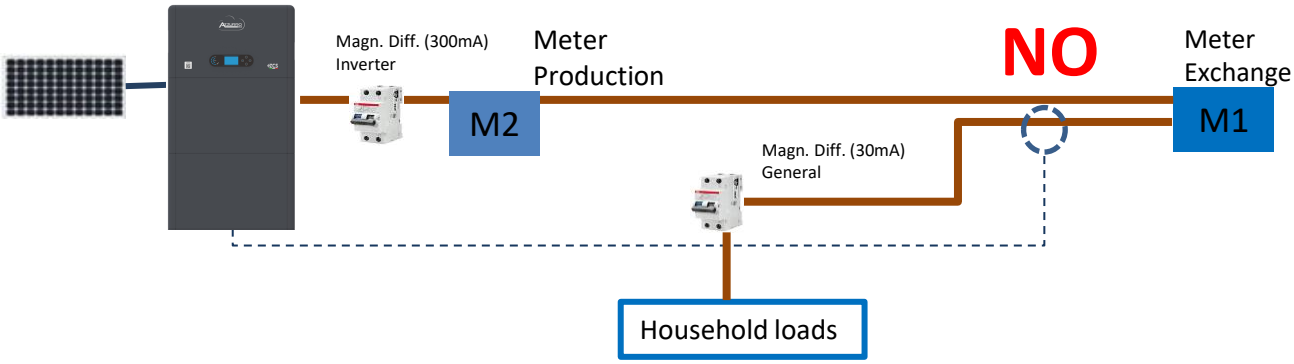
Connect negative and positive in the sensor respectively to inputs 19 and 18 of the COM connector

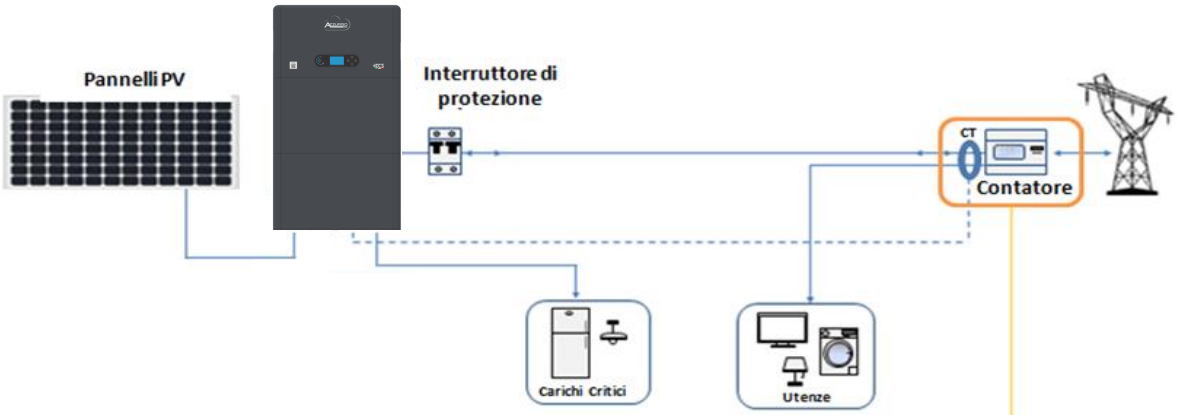
POSITIONING OF CT SENSOR:

✓*Positioned at the output of the import/export meter* so that all incoming and outgoing power flows can be read, it must include all phase cables entering or exiting the meter.
✓The *direction of the CT is independent of the installation*, and is recognised by the system during the first start-up.

Use an 8-pin, category 6 **STP** cable as an **EXTENSION CABLE**; use all the coloured pins (blue-orange-green-brown) to extend the positive cable of the CT and all the white/coloured pins (white/blue-white/orange-white/green/brown) to extend the negative cable of the CT.
The shield must be grounded on one of the two sides.



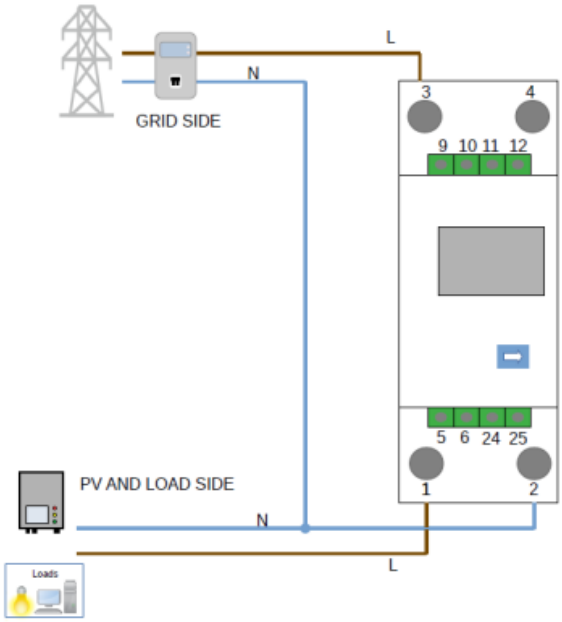




The sensor must include all phase cables entering or exiting the meter.

10.2 MEASURING EXCHANGE VIA DDSU METER

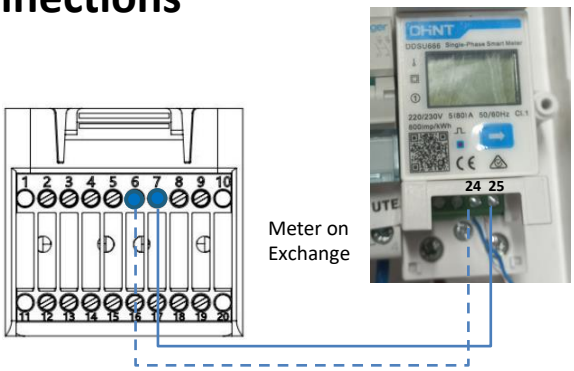
PIN INVERTER	PIN METER	Note
6 →	24	Communication of the Exchange Meter
7 →	25	



DDSU meter connections

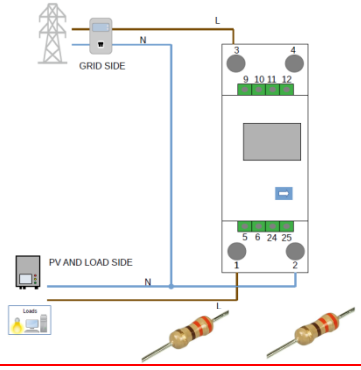
1. Connect Meter and inverter via the RS485 serial port.
On the Meter side, this port is identified by **PINs 24 and 25.**

On the inverter side, use the connection port identified as "COM" by connecting **PINs 6 and 7**.



2. Connect the Meter in "direct connect" mode, specifically:

- ✓ Connect PIN 2 of the Meter to the neutral cable (N);
- ✓ Connect PIN 3 respectively to the Exchange meter direction phase;
- ✓ Connect PIN 1 to the photovoltaic system and loads direction phase.



NOTE: For **distances** between the meter and hybrid inverter of **more than 100 metres**, it is recommended to connect two 120 OhM resistors along the 485 daisy chain: the first to the inverter (between PINs 6 and 7 of the inverter COM), the second directly to the meter (PINs 24 and 25).

10.2.1 DDSU METER SETTING ON EXCHANGE AND INVERTER

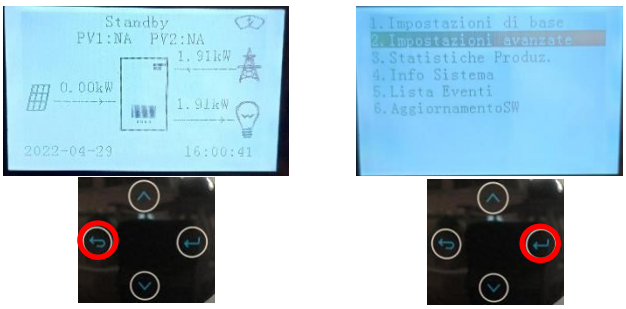
1. Press the button to check that the Meter address is set to **001**.
In addition to what is described above, the display shows the values of:

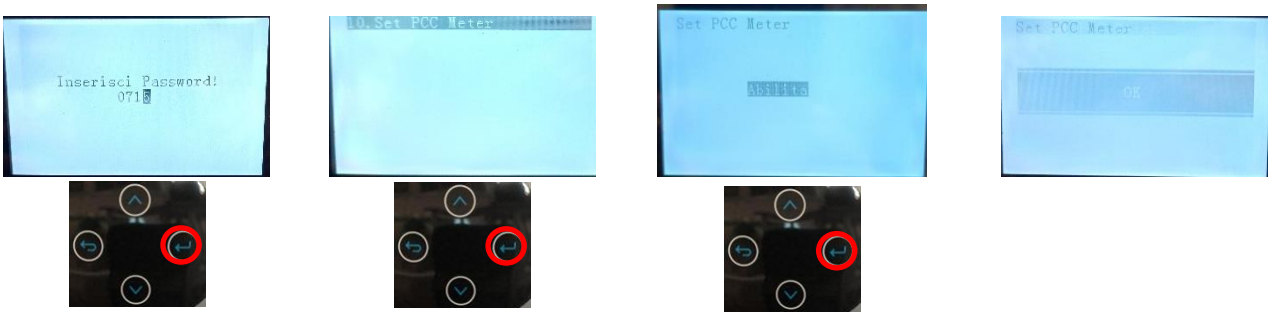
- ✓ Current;
- ✓ Voltage;
- ✓ Power factor;
- ✓ Power.

Address | Current | Power | Voltage | Power Factor

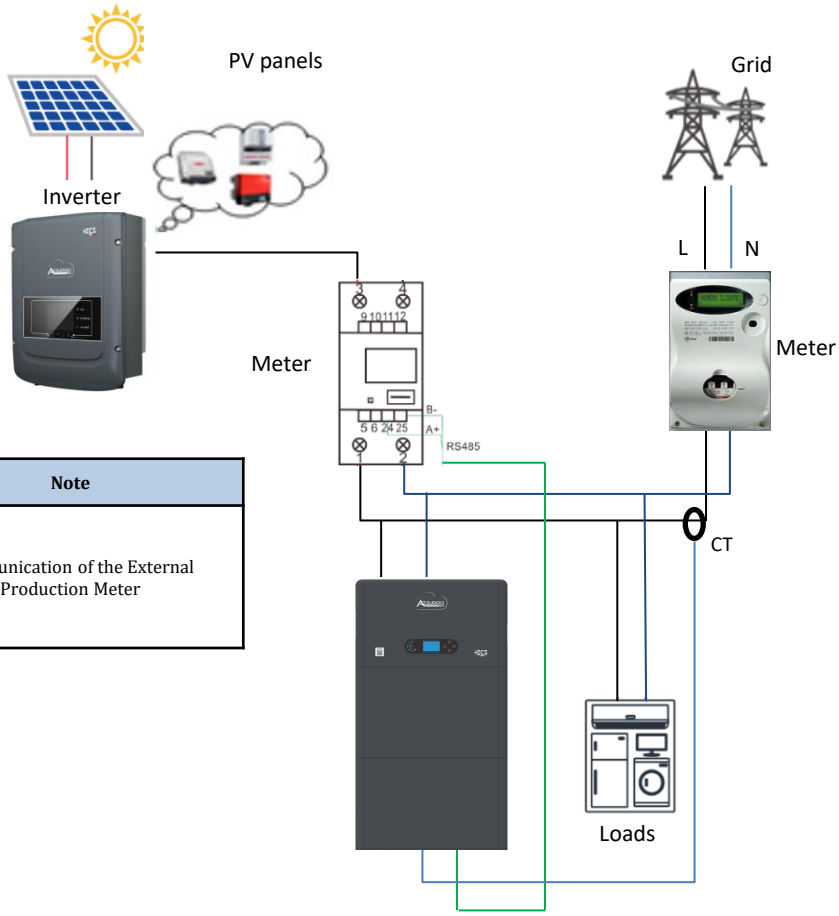
2. To configure the Meter reading on the inverter, access the inverter display (as shown in the figure):

1. First button on the left of the inverter;
2. Advanced settings;
3. Enter password "0715";
4. Set PCC Meter;
5. Enable;
6. Ok.





10.2.2 MEASURING EXTERNAL PRODUCTION VIA DDSU METER



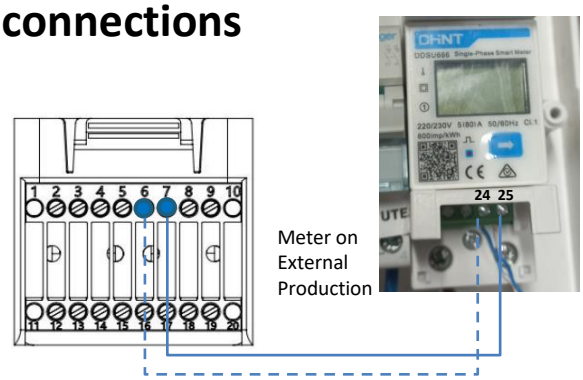
PIN INVERTER	PIN METER	Note
6 →	24	Communication of the External Production Meter
7 →	25	

DDSU meter connections

1. Connect Meter and inverter via the RS485 serial port.

On the Meter side, this port is identified by **PINs 24 and 25.**

On the inverter side, use the COM port by connecting **PINs 6 and 7**

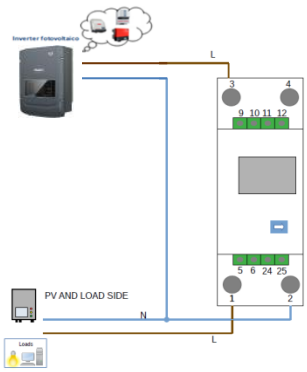


2. Connect the Meter in "direct connect" mode, specifically:

✓ Connect PIN 2 of the Meter to the neutral cable (N);

✓ Connect PIN 3 respectively to the external production direction phase;

✓ Connect PIN 1 to the new photovoltaic system and loads direction phase.



NOTE: For **distances** between the Meter and hybrid inverter **greater than 100 meters**, it is recommended to connect two 120 Ohm resistors along the 485 daisy chain: the first to the inverter (between PINs 6 and 7 of the inverter COM), and the second directly to the Meter (PINs 24 and 25).

10.2.3 DDSU METER SETTING ON EXTERNAL PRODUCTION

1.1 Press the button to check that the Meter address is set to **002**.

In addition to what is described above, the display shows the values of:

- ✓ Current;
- ✓ Voltage;
- ✓ Power factor;
- ✓ Power.

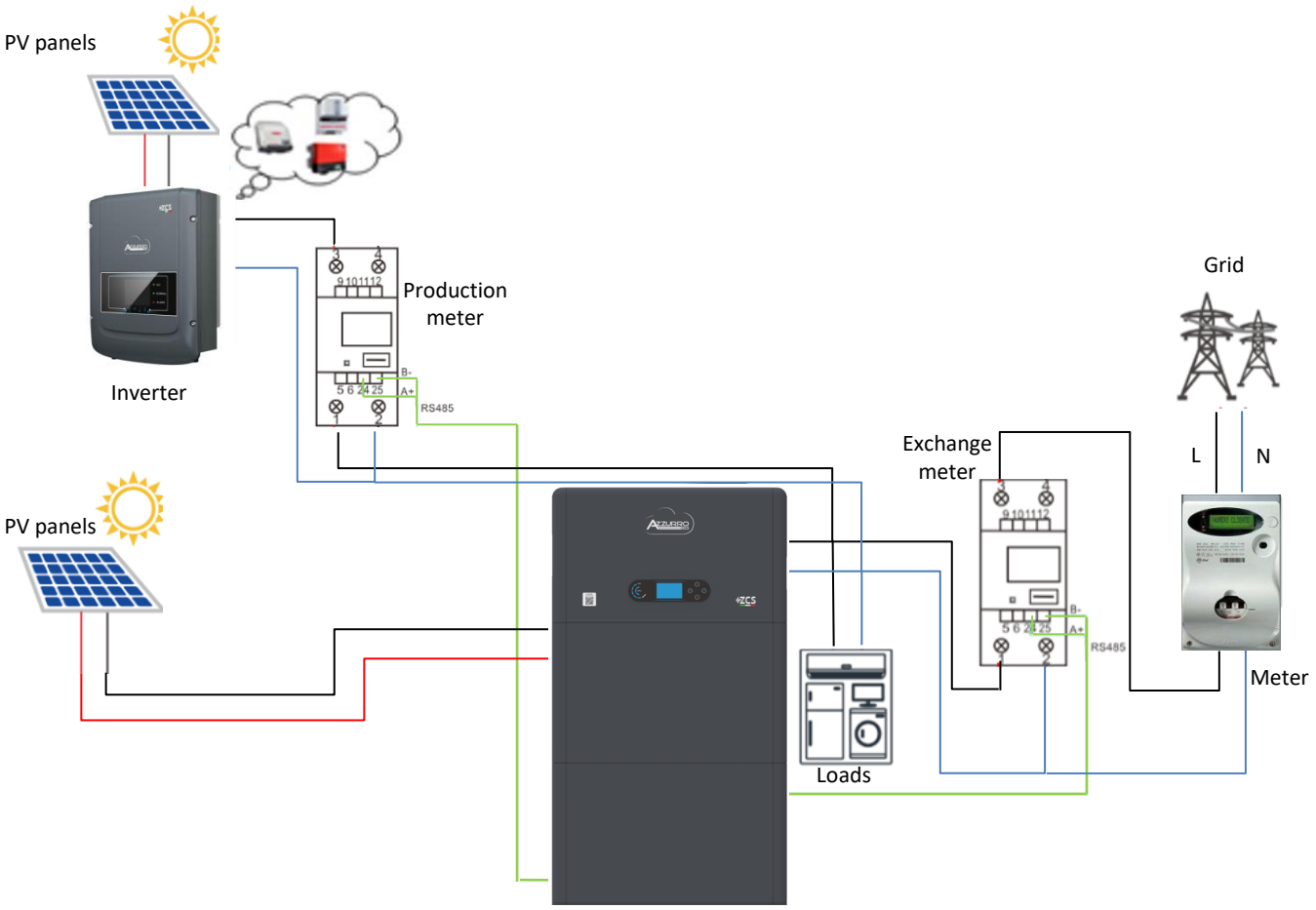
Address | Current | Power | Voltage | Power Factor

1.2 Production meter address setting:

Press and hold for 5 sec to enter settings menu		The protocol type and the modbus address will alternate	 	As soon as the screen with the modbus address number appears, press the arrow to increase the number	 

2. No configurations are required on the inverter for the external production meter setting.

10.2.4 CONFIGURING DDSU EXCHANGE METER AND DDSU PRODUCTION METER



10.2.5 CHECKING CORRECT DDSU METER READING

In order to check the correct reading of the **meter on exchange**, turn off the hybrid inverter and any other PV production sources.
Switch on loads greater than 1 kW.
Stand in front of the meter and use the keys
"➡" to scroll through the items, make sure that:
Power P is:

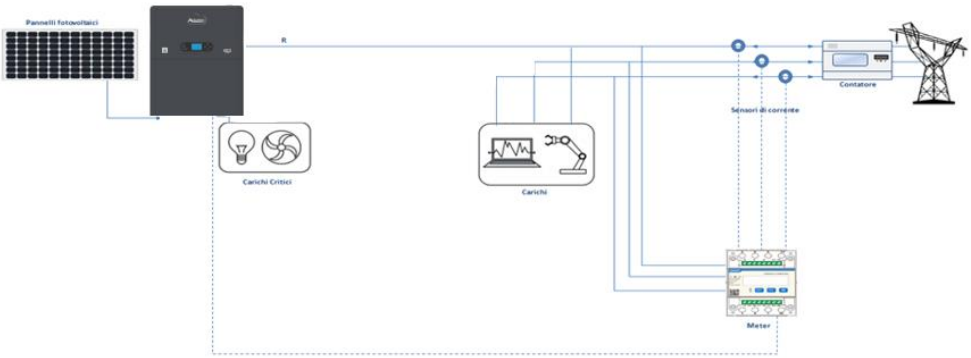
- Greater than 1 kW.
- In line with home consumption.
- The sign in front of each negative value (–).

In the case of a **meter for reading the production of existing photovoltaic systems**, repeat the previous steps:

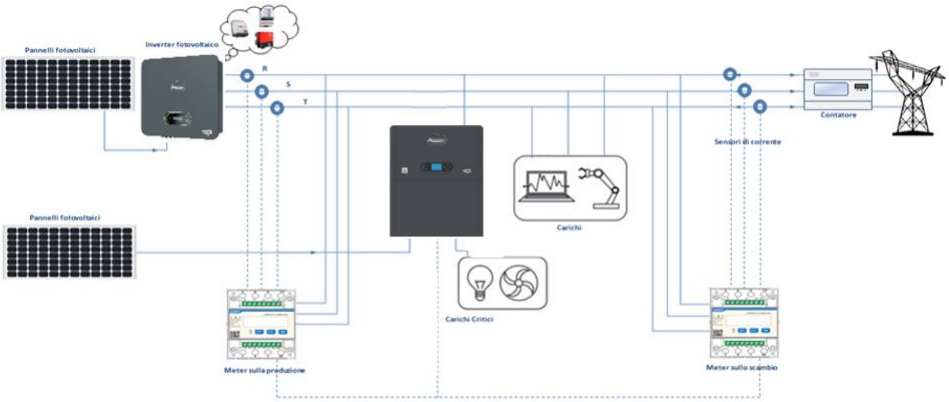
1. This time the sign of the powers must be positive for P.
2. Switch on the Hybrid Inverter, leaving the DC-side PV switch in the OFF position, check that the total external PV power value (Pt) is in line with the value shown on the inverter's display.

10.3 READING VIA DDSU METER

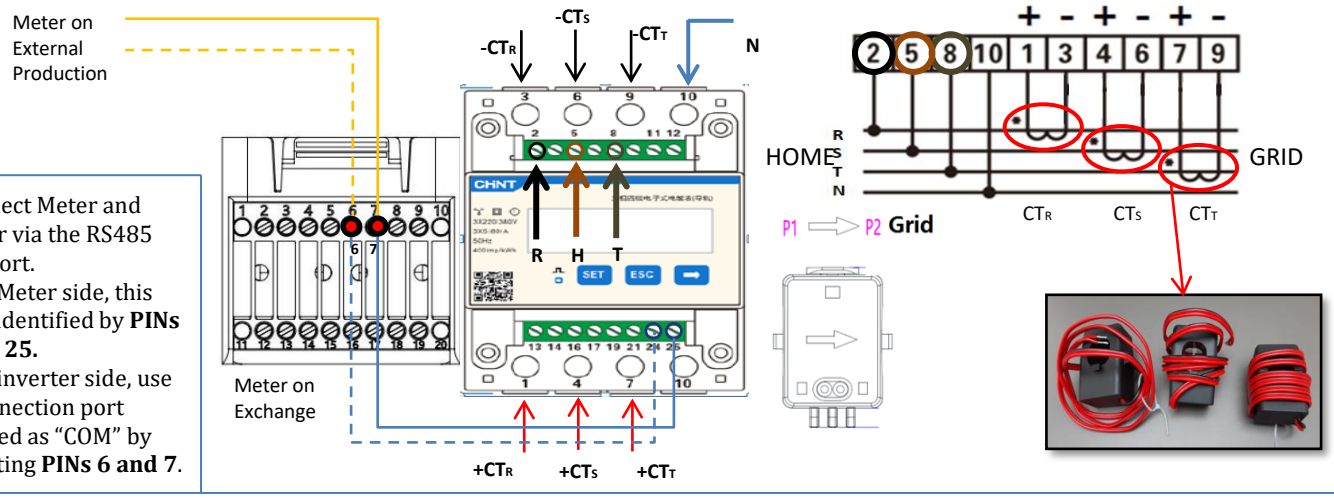
Single-line diagram of hybrid inverter with meter reading mode on exchange only



Single-line diagram of hybrid inverter with meter reading mode on exchange and external production



DTSU meter connections – with COM port



1. Connect Meter and inverter via the RS485 serial port.
On the Meter side, this port is identified by **PINs 24 and 25.**
On the inverter side, use the connection port identified as "COM" by connecting **PINs 6 and 7**.

2. Connect PIN 10 of the Meter to the neutral wire (N), connect PINs 2, 5 and 8 to phases R, S and T respectively.
CT connections, the terminals of the sensor positioned on **phase R** must be connected to **PIN 1** (red wire) and **PIN 3** (black wire).
The terminals of the sensor positioned on **phase S** must be connected to **PIN 4** (red wire) and **PIN 6** (black wire).
The terminals of the sensor positioned on **phase T** must be connected to **PIN 7** (red wire) and **PIN 9** (black wire).
Position the sensors, paying attention to the direction on the sensor itself (arrow pointing towards the grid).
ATTENTION: hook the CT sensors to the phases only after connecting them to the Meter.

NOTE: For **distances** between the meter and hybrid inverter of **more than 100 metres**, it is recommended to connect two 120 OhM resistors along the 485 daisy chain: the first to the inverter (between PINs 6 and 7 of the inverter COM), the second directly to the meter (PINs 24 and 25).

PIN INVERTER	PIN METER	Note
6 →	24	Meter communication
7 →	25	

DDSU METER SETTING ON EXCHANGE AND INVERTER

1. Press the button to check that the Meter address is set to **001**.
In addition to what is described above, the display shows the values of:
- ✓ Current;
- ✓ Voltage;
- ✓ Power factor;
- ✓ Power.

2. To configure the Meter reading on the inverter, access the inverter display (as shown in the figure):
1. First button on the left of the inverter;
2. Advanced settings;
3. Enter password "0715";
4. Set PCC Meter;
5. Enable;
6. Ok.

10.3.1 SETTING DTSU METER

To configure the device in read mode on the exchange, enter the settings menu as shown below:
•Press **SET** and the word **CODE** will appear
•Press **SET** again

•Enter the number "701":
1. From the first screen where the number "600" will appear, press the "→" key once to write the number "601".
2. Press "**SET**" twice to move the cursor left, highlighting "601";
3. Press the "→" key once more to write the number "701"

Note: In case of error, press "ESC" and then "SET" again to reset the required code.

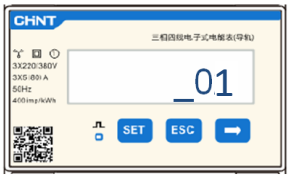
•Confirm by pressing **SET** and to enter the settings menu.
•Enter into the following menus and set the parameters indicated:

1. CT:
- a. Press **SET** to enter the menu
- b. Write "40":
- a. From the first screen where the number "1" appears, press the "→" key repeatedly until the number "10" is written.
- b. Press **SET** once to move the cursor left, highlighting "10"
- c. Press the "→" key repeatedly until the number "40" is written.
- d. Press "ESC" to confirm and "→" to scroll to the next setting.

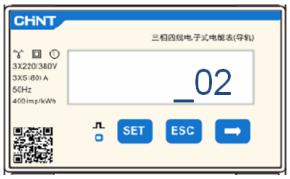
Note: In case of CT sensors other than those supplied, enter the correct transformation ratio.

Note: In case of error, press "SET" until the thousand digit is highlighted and then press "→" until only the number "1" is displayed; at this point, repeat the above procedure.

2. ADDRESS:
- a. Press **SET** to enter the menu:
- b. Leave "01" for Meter on exchange
- c. Write "02" (by pressing "→" once from screen "01"). With address 02, the inverter assigns the data sent by the meter as production power. A maximum of 3 meters can be set for the production (Addresses 02, 03 and 04)



Meter on Exchange



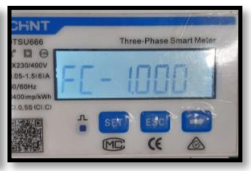
Meter on Production

- d. Press "ESC" to confirm.

10.3.2 CHECKING CORRECT DTSU METER READING

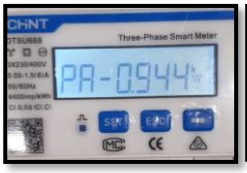
In order to check the correct reading of the **meter on exchange**, turn off the hybrid inverter and any other PV production sources.
Activate loads greater than 1 kW for each of the system's three phases.
Stand in front of the meter and use the "→" keys to scroll through the items, and "ESC" to go back, checking that:

1. The Power Factor values for each phase Fa, Fb and Fc (representing the phase shift between voltage and current) fall within the range of 0.8 to 1.0. If the value is lower, move the sensor to one of the other two phases until the value falls within the specified range.



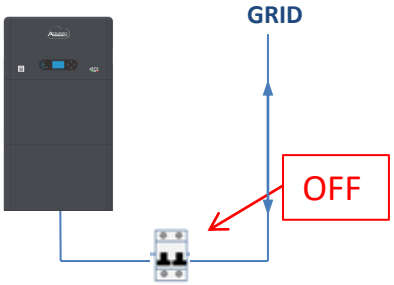
2. The Pa, Pb and Pc Powers are:
   - •Greater than 1 kW.
   - •In line with home consumption.
   - •The sign in front of each negative value (–).

   In the case of a positive sign, reverse the direction of the toroidal winding in question.



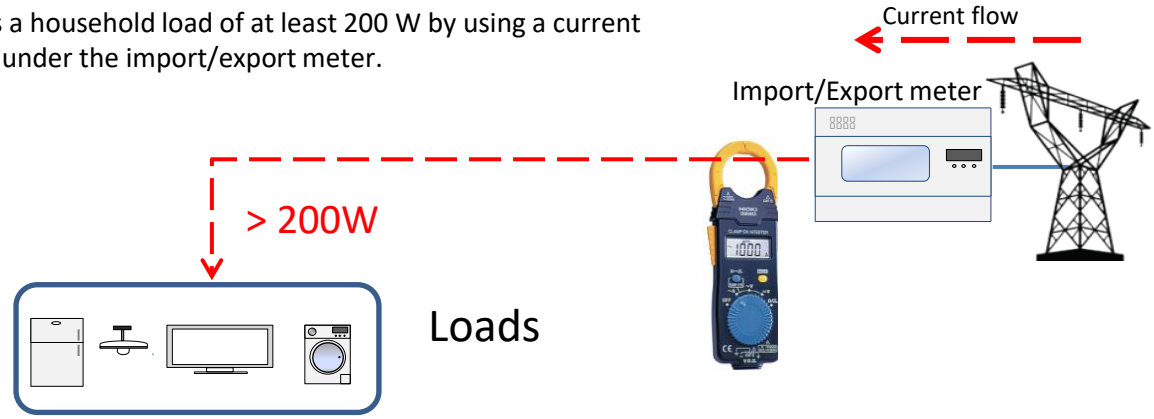
For meters used to read the production of existing photovoltaic systems, repeat the previous steps as follows:
1. Check the Power Factor as described in the previous case.
2. This time, ensure that the sign of the powers (Pa, Pb, and Pc) are positive.
3. Switch on the Hybrid Inverter, and check that the total PV power value (Pt) matches the value displayed on the inverter's screen.

Make sure that the AC switch of the inverter is open and that no voltage is present on the inverter's terminal block.



Check that the DC circuit breaker of the inverter is in the OFF position.

Make sure there is a household load of at least 200 W by using a current clamp to measure under the import/export meter.

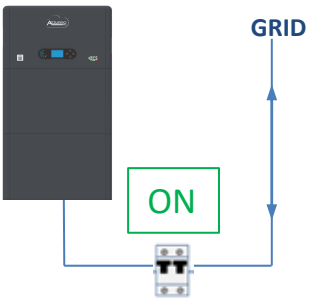


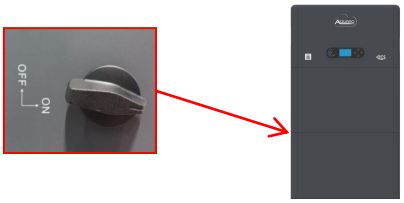
Switch on the batteries:

1) Set the disconnect switch to ON;
2) Press the button.

Once pressed, the button will light up and the internal contact will close.

Turn ON the AC circuit breaker located between the inverter and AC grid.





To supply DC voltage to the hybrid inverter, turn ON the circuit breaker

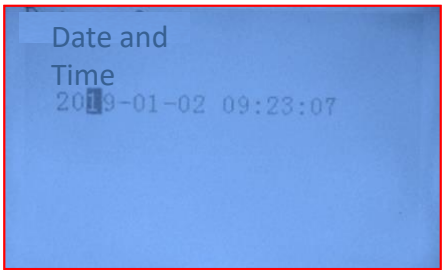
IMPORTANT: Use a PC and a USB stick to perform any updates or adjust the country code settings.

Parameter	Note
1. Language option	The default setting is English.
*2. Setting and confirming system time	If the inverter is connected to the host computer as the App of the collector or for mobile devices, the time should have been calibrated to local time.
**3. Importing safety parameters	Find the safety parameters file (named after the corresponding country) on the website, download it onto the USB flash drive and import it.
***4. Setting battery parameters	Default values are shown according to the input channel configured
5. Set-up is complete	

*2. Importing and confirming system time

1.Settings

2. Date and Time



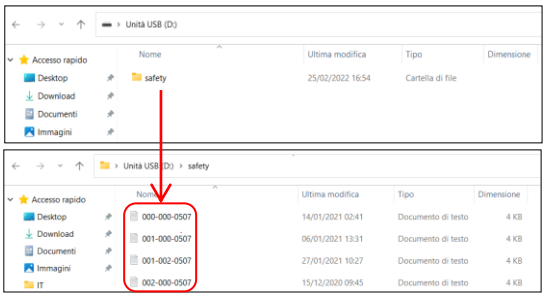
**3. Importing safety parameters (country code)

1.Basic settings

3. Safety parameters

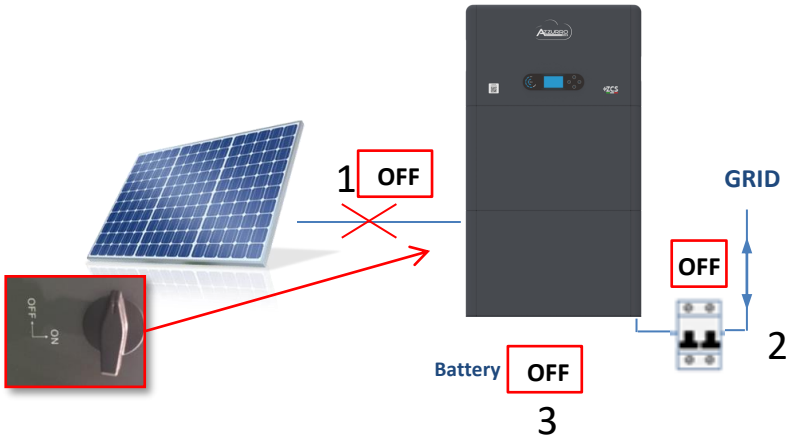
Code		Region		Code		Region	
000	000	Germany	VDE4105	018	000	EU	EN50438
	001		BDEW		001		EN50549
	002		VDE0126		002		EU-EN50549-HV
				019	000	IEC EN61727	
	003		VDE4105-HV	020	000	Korea	Korea
	004		BDEW-HV		001		Korea-DASS
001	000	Italia	CEI-021 Internal	021	000	Sweden	
	001		CEI-016 Italia	022	000	Europe General	EU General
					001		EU General-MV
	002		CEI-021 External		002		EU General-HV
	003		CEI-021 In Areti	024	000	Cyprus	Cyprus
	004		CEI-021In--HV	025	000	India	India
					001		India-MV
002	000	Australia	Australia		002		India-HV
	008		Australia-B	026	000	Philippines	PHI
					001		PHI-MV
	009		Australia-C	027	000	New Zealand	New Zealand
003	000	Spain	ESP-RD1699		001		New Zealand-MV
	001		RD1699-HV		002		New Zealand-HV
	002		NTS	028	000	Brazil	Brazil
	003		UNE217002+RD647		001		Brazil-LV
	004		Spian Island		002		Brazil-230
004	000	Turkey	Turkey		003		Brazil-254
005	000	Denmark	Denmark		004		Brazil-288
	001	Greece	DK-TR322	029	000	Slovakia	SK-VDS
006	000		GR-Continent		001		SK-SSE
	001		GR-Island		002		SK-ZSD
007	000	Netherland	Netherland	030	000		
	001		Netherland-MV	031-032			
	002		Netherland-HV	033	000	Ukraine	
008	000	Belgium	Belgium	034	000	Norway	Norway
	001		Belgium-HV		001		Norway-LV
009	000	UK	G99	035	000	Mexico	Mexico-LV
	001		G98	036-037			
	002		G99-HV	038	000	60Hz	
010	000	China	China-B	039	000	Ireland EN50438	Ireland
	001		Taiwan	040	000	Thailand	Thai-PEA
	002		TrinaHome		001		Thai-MEA
	003		HongKong	041			
	004		SKYWORTH	042	000	50Hz	LV-50Hz
	005		CSISolar	043			
	006		CHINT	044	000	South Africa	SA
	007		China-MV		001		SA-HV
	008		China-HV	045			
	009		China-A	046	000	Dubai	DEWG
011	000	France	France		001		DEWG-MV
	001		FAR Arrete23	047-106			
	002		FR VDE0126-HV	107	000	Croatia	Croatia
	003		France VFR 2019	108	000	Lithuania	Lithuania
012	000	Poland	Poland	109	000		
	001		Poland-MV	110			
	002		Poland-HV	111	000	Columbia	Columbia
	003		Poland-ABCD		001		Columbia-LV
013	000	Austria	Tor Erzeuger	112-120			
014	000	Japan		121	000	Saudi Arabia	IEC62116
	001			122	000	Latvia	
015	003	Switzerlan		123	000	Romania	
16-17							

To set the correct country, upload the unzipped folder called "safety" onto the USB flash drive. This folder can be downloaded from the website https://www.zcsazzurro.com/it/documentazione/easy-power-one-all

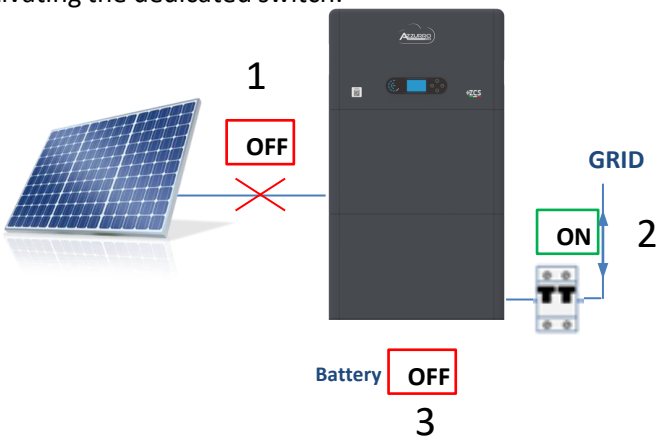


NOTE: By default, the internal interface of the inverters are set to the CEI-021 country code, if a different country code is required, please contact technical support.

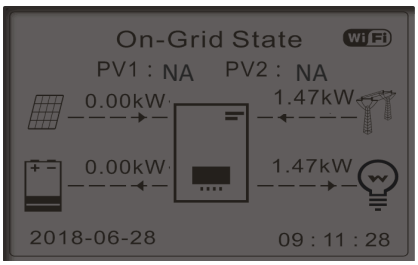
1) Turn OFF the PV circuit breaker and disconnect the inverter from the grid



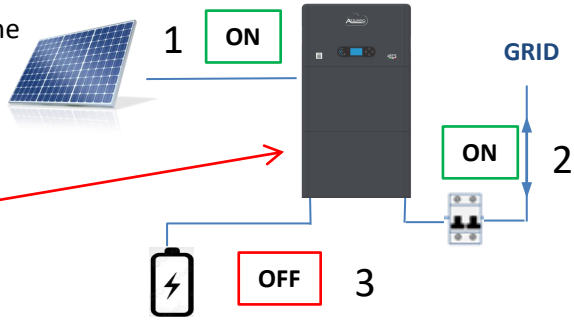
2) Restore AC voltage by activating the dedicated switch:

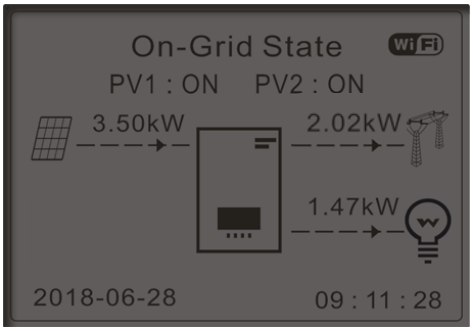


3) Check that the power value shown on the grid display closely matches the power consumption shown on the meter, or measure using a current clamp under the import/export meter.



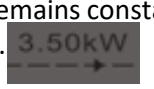
4) Switch on the photovoltaic system by flipping the DC circuit breaker to the ON position





After activating the photovoltaic system, check that:

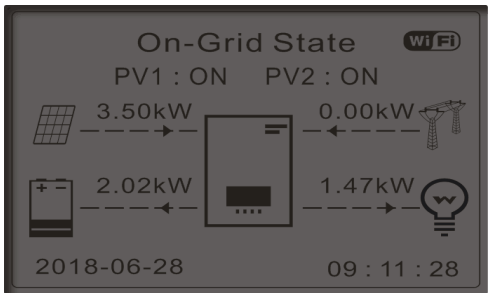
The consumption value 

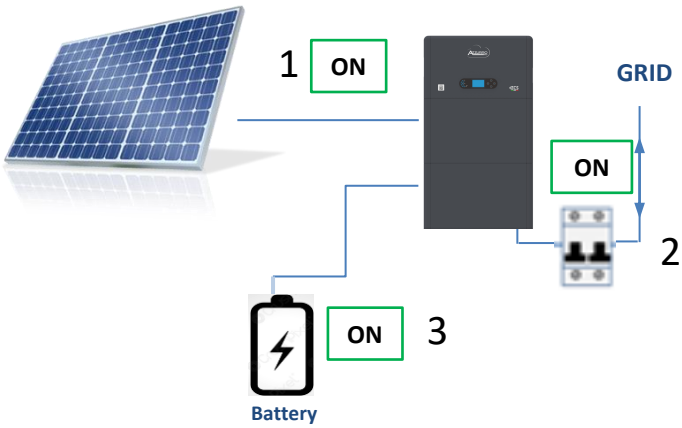
remains constant as the photovoltaic power output increases. 

* Check that the power of the loads in use does not change:
- Heat pumps or pumps → Load may vary over time
- Lights or hairdryers → Load remains constant over time

5) Switch on the battery or batteries, ensuring that the system operates in the mode described in the section **OPERATING STATUSES IN AUTOMATIC MODE:**

•PV>Load →battery charging
•PV<Load Battery discharging
•PV=Load Battery on stand-by





<u>NOTE: At the initial start-up, the batteries will charge up to 100%</u>

Note: If the conditions described above are not met:
•Check that the current sensor is correctly positioned and then proceed with restarting the system.

14. CHECKING THE INVERTER SETTINGS

To check whether the parameters have been correctly set, enter the display menu and go to "Inverter Info."
Check the data, especially those highlighted:

Inverter Info (1)

Serial number:	ZQ1025003KE233100073
Hardware version:	V001
Software version:	Press enter to view!
Safety firmware version:	V02000

- *Serial number of the machine*
- *Hardware version*
- *Software version installed*
- *Service Code Version*

Inverter Info (2)

Country:	001-000
Power level:	6 kW

- *Country code for the standard*
- *Max inverter power*

Inverter Info (3)

PV Input Mode :	Independent
Working mode :	Automatic mode
RS485 address :	01
EPS :	Disabled

- *Photovoltaic input mode (Independent / Parallel)*
- *Information on operating mode (must be automatic)*
- *Communication address (value must be different from 00)*
- *Information on EPS mode*

Inverter Info (4)

IV Curve Scan :	Disabled
Logic interface:	Disabled

- *Information on MPPT scan mode*
- *Information on DRMs0 mode (enable only for Australia)*

Inverter Info (5)

Power Factor :	1.00
Zero grid feed-in mode :	Disabled
Insulation resistance:	7000KOhm

- *Power factor value*
- *Information on maximum grid in-feed mode*
- *Measured value of the insulation resistance*

15. ZERO FEED-IN MODE

2. Advanced settings	**Enter 0715**
	2. Anti-reflux (Limit. –feed-in)

The "Anti Reflux Control" mode can be enabled to limit the maximum power exported to the grid. The set reflux power corresponds to the desired maximum export power to the grid.

1. Anti-reflux control	→	Enabled
		Disabled
2. Reflux power	→	***KW

16. LOGIC INTERFACE (DRMS0)

Attention: this function must be disabled!!!!

2. Advanced settings			
4. Logic interface	→	Enabled	no
	→	Inactive ✓	OK

17.1 EPS MODE (OFF GRID)

In the event of a power failure, or when operating in an OFF-Grid mode with the EPS function enabled, the HYD3000-HYD6000-ZP1 inverter will operate in Emergency Power Supply (EPS) mode using the PV power and energy stored in the battery to supply power to critical loads via the LOAD connection port.

17.2 EPS MODE (OFF GRID) - WIRING PROCEDURE AND INSTALLATION TYPES

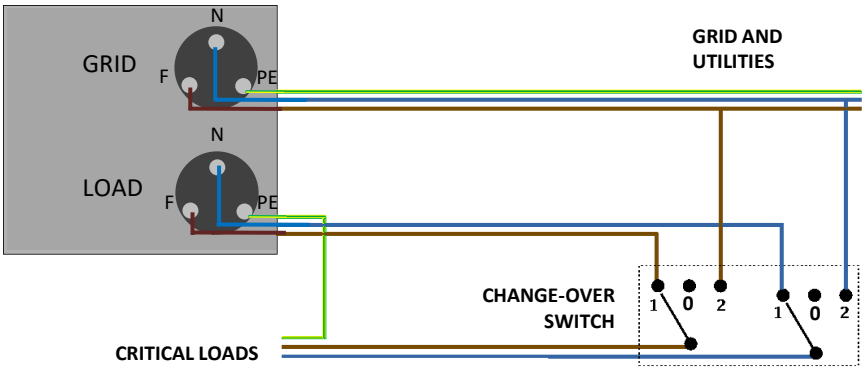
Identify critical or priority household loads: it is advisable to identify household loads that are vital during power outages, such as lighting, refrigerators or freezers, emergency outlets.

- High power loads (such as ovens, washing machines, heat pumps) may not be supported by the inverter in EPS mode due to the maximum power that can be delivered under these conditions.
- Loads with high inrush currents (such as pumps, compressors or devices driven by electric motors) may not be supported by the inverter in EPS mode because their inrush current, even if only for a very short period, is considerably higher than that supplied by the inverter.
- Inductive loads (such as induction plates) may not be supported by the inverter in EPS mode due to their specific waveform requirements.

Connect the phase, neutral and ground wires to the LOAD output, located on the right side at the bottom of the inverter.
NOTE: the LOAD output must only be used for connecting the critical load.

CHANGE-OVER SWITCH

When performing maintenance on components of the photovoltaic system or when the inverter is unavailable for use, it is recommended to install a change-over switch. This switch allows the loads normally connected to the inverter's load line to be directly powered by the grid.



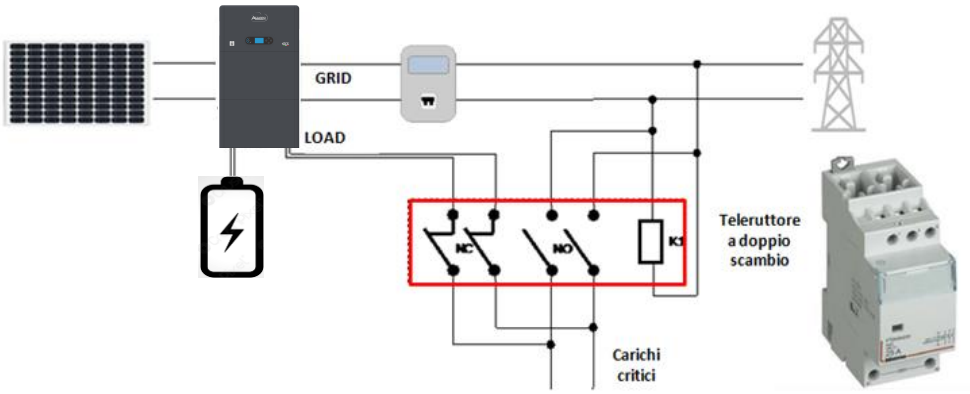
Position 1→ Priority loads connected and powered by the inverter's LOAD line

Position 0→ Priority loads not powered by the inverter or by the grid

Position 2→ Priority loads connected and powered by the grid

DOUBLE SWITCH CONTACTOR

For subsidised systems, a double switch contactor can be installed. This device ensures that critical loads are normally powered by the grid, and they will only switch to the EPS LOAD line of the inverter in case of a power failure, thanks to the switching of the contactors.



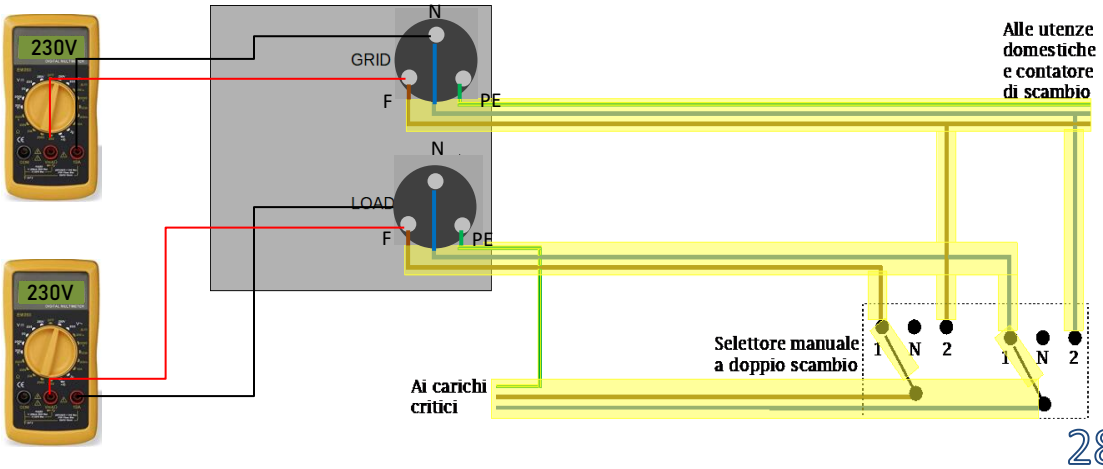
NOTE: In the described conditions, during a power outage, the part of the system powered by the inverter's LOAD port operates in a manner similar to an IT system.

Note: If the hybrid inverter is to be installed under different conditions than those shown in the diagrams above, please contact technical support to check whether this is feasible.

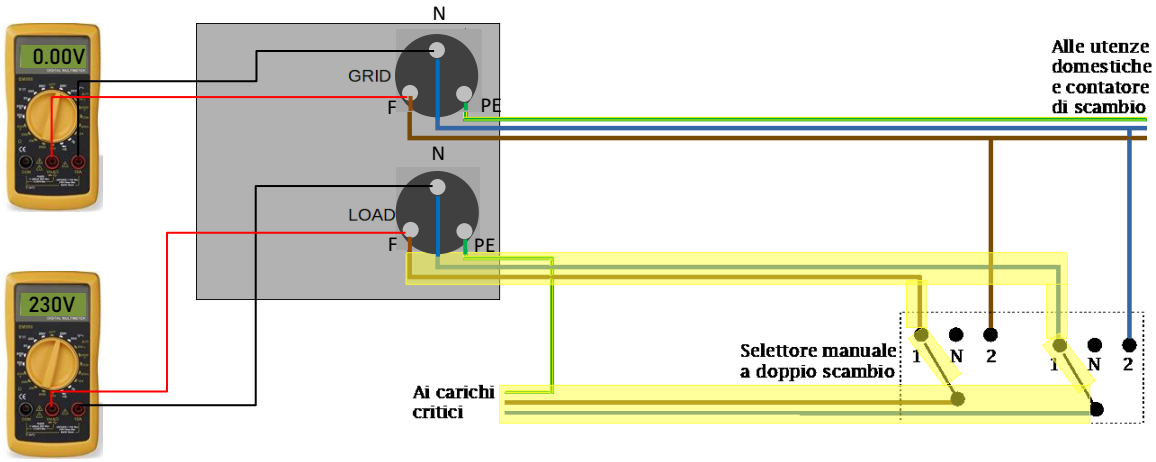
17.3 EPS MODE (OFF GRID) - OPERATION

Under normal operating conditions **with the alternating voltage supplied by the mains**, both the system's standard loads and priority or critical loads are supplied directly by the mains, eliminating the need for a double switch-over contactor. This operation is shown in the figure below.

It should also be noted that the LOAD output remains powered at all times, even when the mains voltage is present.



During a **power outage**, the alternating voltage supplied by the grid will be lost. This condition will cause the internal contacts of the hybrid inverter to switch over. Once the preset activation time has elapsed, the inverter will continue to deliver a 230V alternating voltage to the LOAD output, supplying power only to critical loads according to the availability of the batteries and PV system.

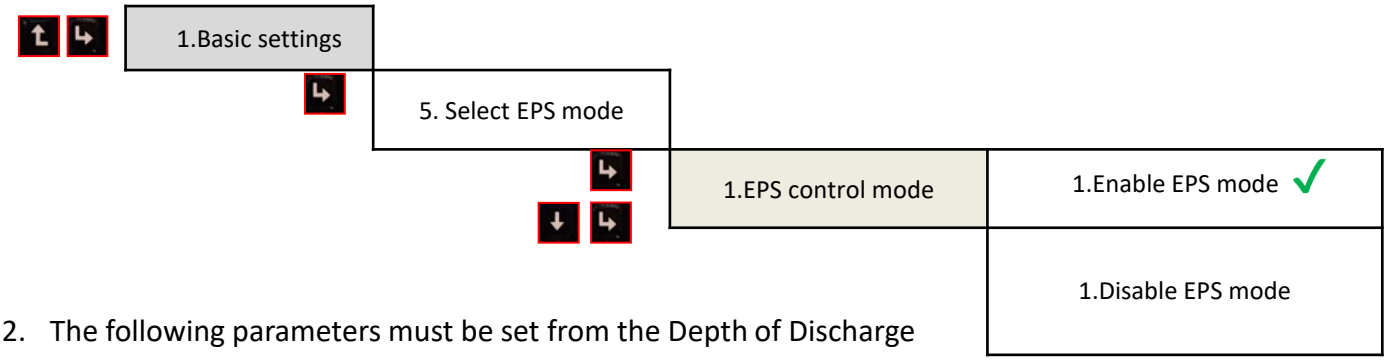


NOTE: with this configuration, the system operates as an IT system during a power outage.

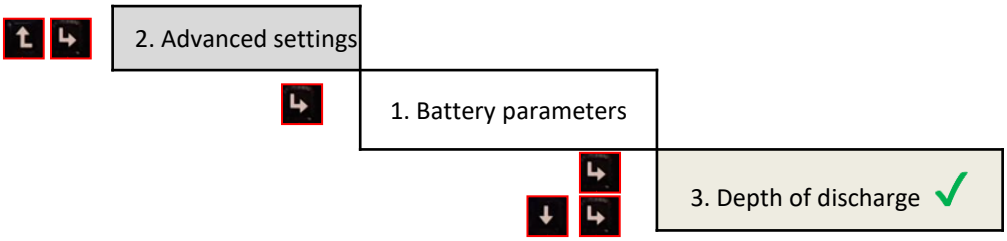
17.4 EPS MODE (OFF GRID) - MENU ENABLING

To enable the EPS (OFF-GRID) mode:

1. The EPS mode must be enabled from the display.

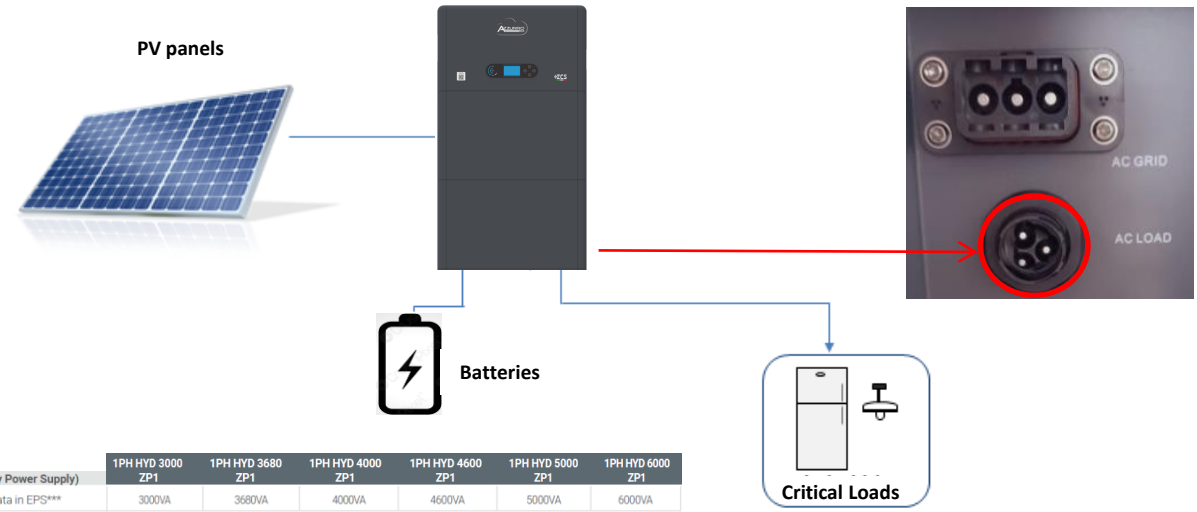


2. The following parameters must be set from the Depth of Discharge menu.



18.1 OFF GRID MODE ONLY

Activating the HYD3000-HYD6000-ZP1 inverter in off-grid mode allows it to supply power to the pre-defined critical loads using energy from the PV system and stored in the batteries. To do this, it is necessary to enable the EPS (Emergency Power Supply) mode.

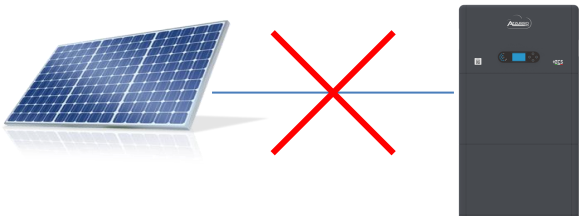


Uscita EPS (Emergency Power Supply)	1PH HYD 3000 ZP1	1PH HYD 3680 ZP1	1PH HYD 4000 ZP1	1PH HYD 4600 ZP1	1PH HYD 5000 ZP1	1PH HYD 6000 ZP1
Massima potenza erogata in EPS***	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA
Tensione e frequenza uscita EPS	Monofase 230V 50Hz/60Hz					
Corrente erogabile in EPS	13A	16A	20A	20.9A	25A	30A
Distorsione armonica totale	< 3%					
Switch time	< 10ms					

*** Power output in EPS mode depends on the type of batteries and the status of the system (e.g. no. of batteries, residual capacity, temperature)

18.2 OFF GRID MODE ONLY - START UP

1) Check that the DC circuit breaker of the inverter is in the OFF position.

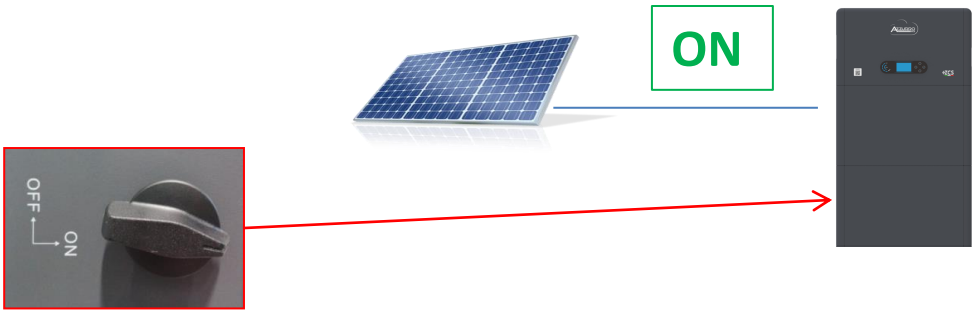


2) Switch on the batteries:

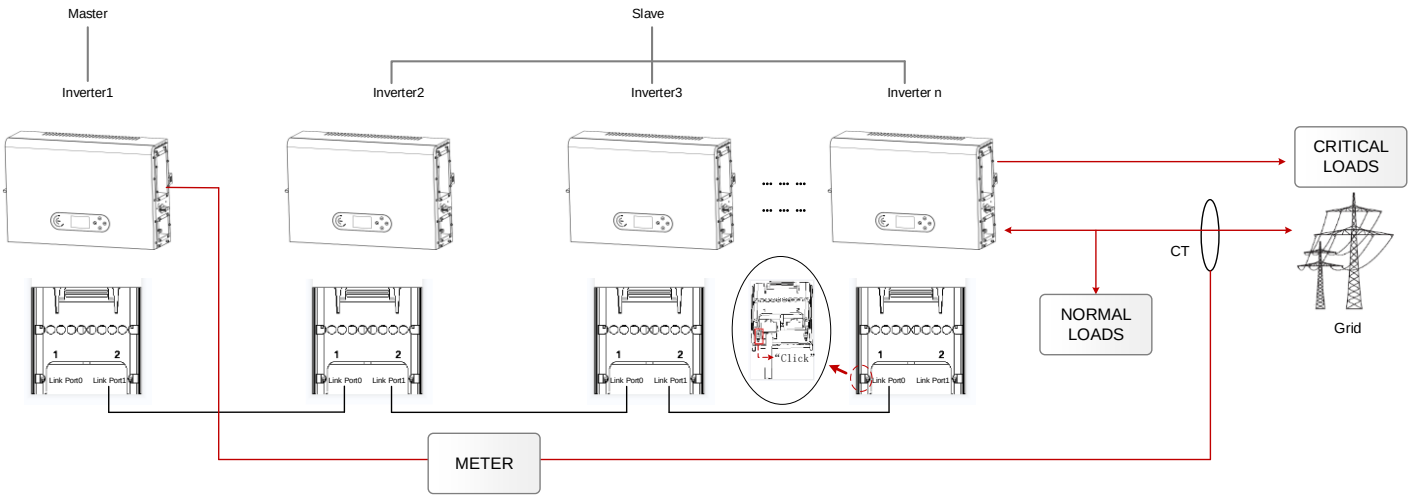
1) Set the disconnect switch to ON;
2) Press the button.

Once pressed, the button will light up and the internal contact will close.

3) Switch on the photovoltaic system by turning the switch to the ON position.



19.1 PARALLEL INVERTER MODE - CONFIGURATION



1. The inverters must be interconnected using the cable supplied, making sure to populate the inputs as follows:
   - **Link port 0** of **Master** inverter with **terminating resistor enabled (switch set to 1)**
   - **Link port 1** of **Master** Inverter → **Link port 0** of **Slave 1** Inverter
   - **Link port 1** of **Slave 1** Inverter → **Link port 0** of **Slave 2** Inverter
   - ...
   - **Link port 1** of **Slave n-1** Inverter → **Link port 0** of **Slave n** Inverter
   - **Link port 1** of **Slave n** inverter with **terminating resistor enabled (switch set to 1)**

   Note:
   Terminating resistors can be enabled via a switch
   The parallel cable between inverters is supplied

2. If the inverters connected are of the same capacity, the LOAD outputs can be connected in parallel to supply power to the same group of priority loads. This requires the use of a parallel switchboard. It is necessary to ensure that the connections between each inverter and the parallel switchboard have:
   - The same length
   - The same cross-section
   - The lowest possible impedance.

   It is advisable to install appropriate protection for each connection line between the inverter and switchboard.

3. The combined load connected to the LOAD outputs should not exceed the total power output of the inverters in EPS mode.
4. The meters should be connected to the Master Inverter (Primary).

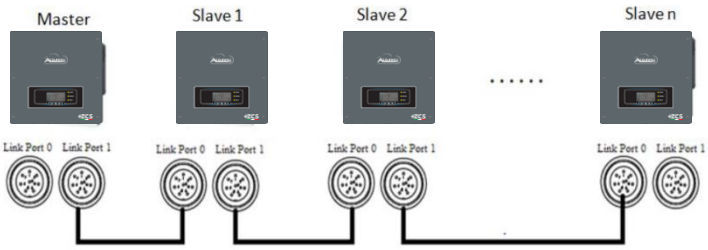
19.2 PARALLEL INVERTER MODE - SETTINGS

2. Advanced settings

PWD 0715
6.Parallel settings

OK

Enable	Enable	Enable	Enable
Primary	Replica	Replica	Replica
00	01	02	03
ok	ok	ok	ok



1.Parallel Control	Enable / disable
2.Parallel Master-Slave	Primary / Replica
3.Parallel Address	00 (Primary) 01 (replica 1) ... 0n (Replica n)
4.Save	ok

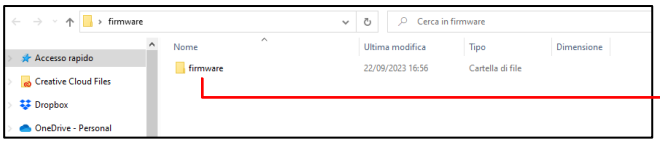
20. FIRMWARE UPDATE

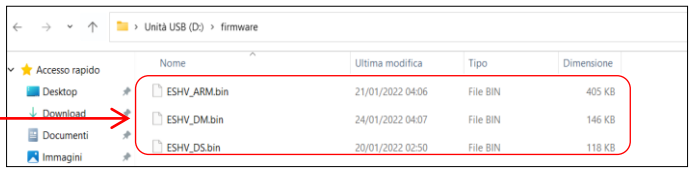
Main menu

1. Basic settings
2. Advanced settings
3. Event list
4. System Info
5. Software Update
6. Energy statistics

PWD 0715

To update the firmware, upload the unzipped folder called “Firmware” onto the USB flash drive. This folder can be downloaded from the website https://www.zcsazzurro.com/it/documentazione/easy-power-one-all
The folder contains the files for the update in .bin or .hex format





21. SELF-TEST

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

1.Basic settings

5.Self-test

1. Fast self-test

2. STD Self-test

Note: the STD self-test is the same as the Fast self-test except that the waiting times are longer (about 12 minutes for the fast self-test compared to 45 minutes for the STD self-test).

22. % CHARGE MODE

To balance misaligned batteries, it may be necessary to force a charge from the grid to fully charge the batteries

Legend:

Back | Change setting | Next

2. Mode % Charge

Rules. 0:	Enable		
From	To	SOC	Charge
02h00m	04h00m	100%	01000 W
Effective date			
Jan 01	-	Dec 31	
Select weekday			
Mon. Mar. Wed. Thu. Fri. Sat. Sun.			

Select Enabled to activate the charging function

Charging start and end time

Charge power

Maximum charging percentage

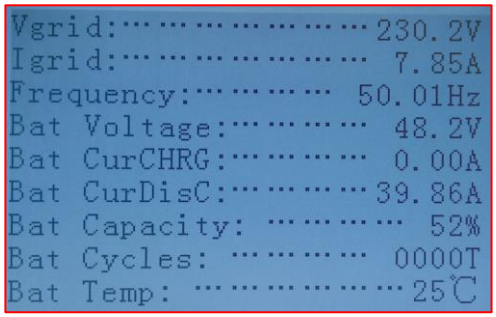
Charging period

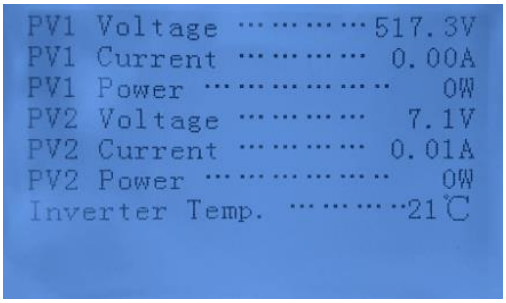
Weekdays on which the mode is activated

Once the preferred settings have been made, scroll to the initial item and press

23. QUICK INFO ON SYSTEM STATUS

Press ↓ from the main menu to access the instant information on the battery and AC grid.

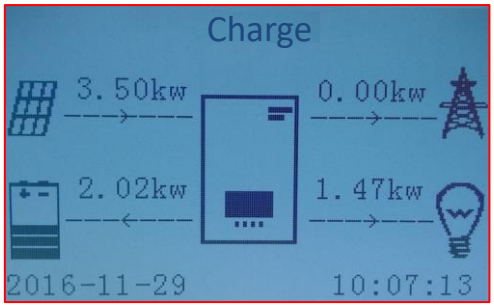




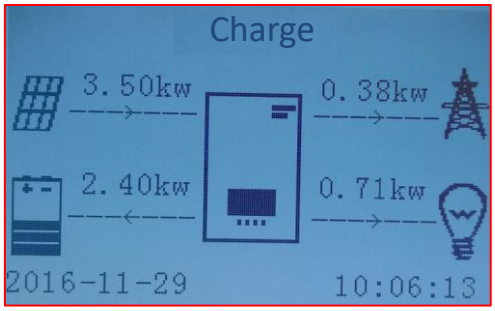
Press ↑ from the main menu to access the instant information on the DC-side of the inverter.

24. OPERATING STATUSES IN AUTOMATIC MODE

Charge

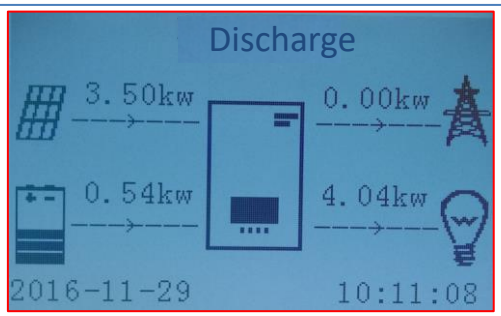


When the power produced by the photovoltaic system is greater than the energy required by the loads, the inverter will charge the battery with the excess energy.

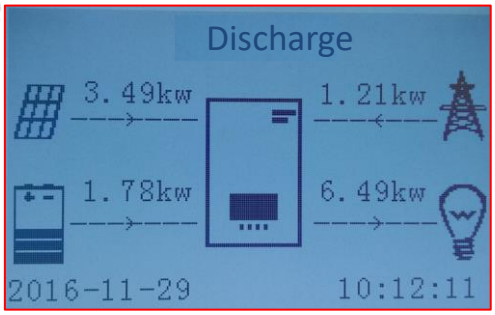


When the battery is fully charged, or when the charging power is limited (to preserve the integrity of the battery), the excess energy will be exported to the grid.

Discharge

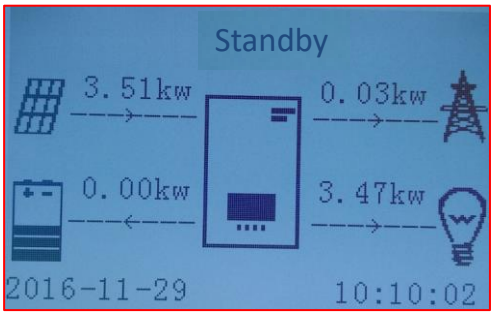


When the power of the photovoltaic system is once again less than the power required by the loads, the system will use the energy stored in the battery to power the household loads.



When the total 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 inverter will remain in Standby mode until:

•the difference between the photovoltaic production and the power required by the loads is less than 100W

•the battery reaches full charge status, and the photovoltaic production exceeds consumption by at least 100W)

•the battery is flat and the photovoltaic production is lower than consumption (by no more than 100W)