



AEA 5000

Installation and user
manual



Document name	SIR-AEA5000-EN-REV0
Date of publication	2022-01-11



Contents

	2
1. Product presentation	3
1.1 Dimensions	3
1.2 Description of the front panel controls	4
1.3 Fault list	5
1.4 Safety instructions and warnings	6
1.5 Protective device	6
1.6 Disposal	6
1.7 Cleaning	6
1.8 Identification of the AEA 5000	7
1.9 Functional principle	8
2. Commissioning of the cabinet	9
2.1 Installing the batteries	9
2.2 Installation of batteries	9
2.2.1 Removing the front door	9
2.2.2 Inserting several batteries	9
2.2.3 Connecting the batteries	10
2.2.4 Connecting the communication cable 2.2.5	10
Connecting to the mains	11
2.2.6 Connecting the measuring torus	11
2.2.7 Connecting the photovoltaic panels 2.2.8	11
Switching on the batteries	12
2.2.9 Option: Router setup	12
2.3 Option: Hot water tank management	15
2.3.1 Hot water tank control	15
2.3.2 Hot water tank connection (max. 20A)	15
2.4 Option: Mains energy sales	16
2.5 Option: Backup output	16
2.5.1 Management of the standby output	16
2.5.2 Connecting the safety output	16
3. Putting into operation	17
3.1 Switching on/off	17
3.2 Functional check	17
Contacts	18



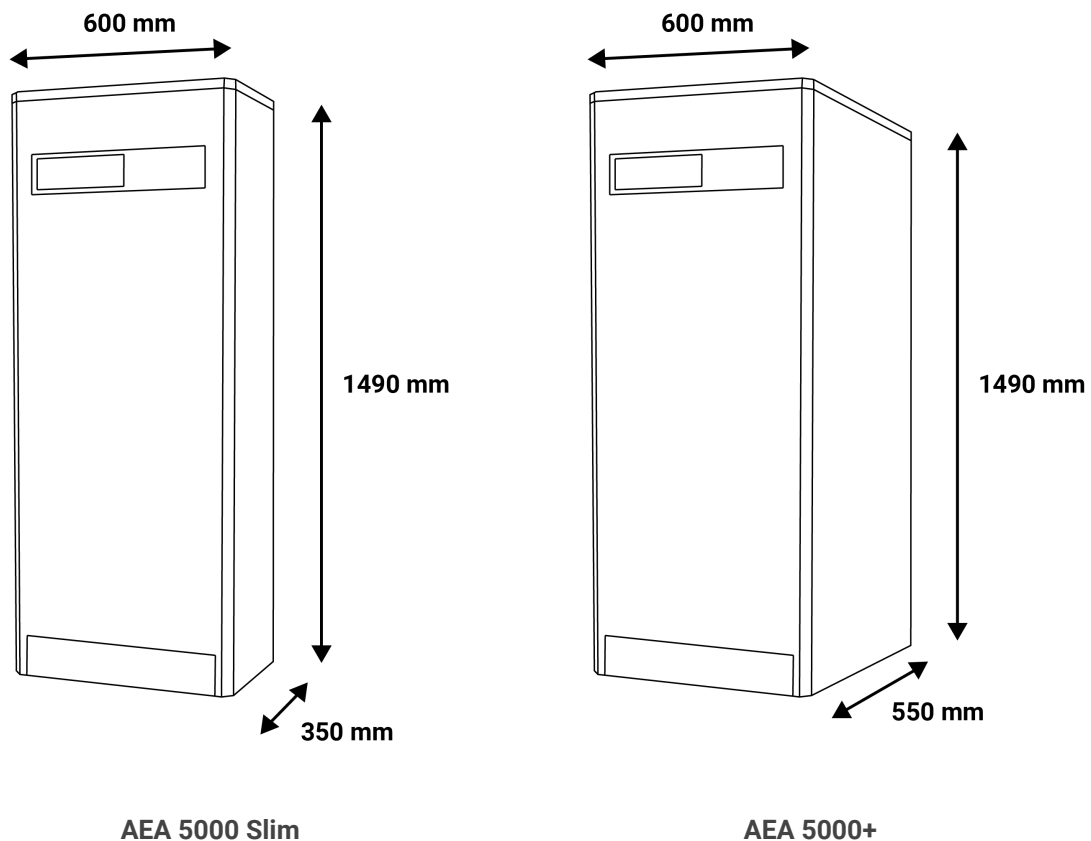
1. Product presentation

The AEA 5000 cabinet was developed with the aim of delivering a reliable power supply from various sources of conventional and renewable energy.

This cabinet promotes self-production and facilitates self-consumption of the electrical energy generated, in order to reduce the consumption of electricity from the electrical network.

The AEA 5000 cabinet offers the possibility of measuring and optimizing a single-phase consumption point and controlling a resistive domestic hot water tank (option).

1.1 Dimensions



Warning







Do not put anything on it.

Leave a clearance of at least 5 cm on the sides and back of the cabinet, and at least 20 cm above the cabinet.



1.2 Description of the front panel controls



Icon	Comment
	<p><u>Solar indicator</u></p> <p>Green fixe: production in progress but production below consumption Slow flashing green: production in progress, production covers the needs of the dwelling, the surplus is charged into the battery Fast flashing green: production in progress, production covers the needs of the dwelling, the surplus is charged into the battery and the remaining surplus is injected into the grid Flashing red: emergency mode (optional) Red fixe: cabinet stopped or no mode selected Off: no production</p>
	<p><u>Battery indicator</u></p> <p>Flashing green: charging in progress Green fixe: discharge in progress Unlit: no charging or discharging Red fixe: battery low or other battery fault</p>
	<p><u>Warning light</u></p> <p>Unlit: no fault Red fixe: at least one fault present</p>
	<p><u>Remote management light</u></p> <p>Green fixe: communication with the server in progress Red: server connection error Unlit: no IP address received (no DHCP connection to the box)</p>
	<p><u>WiFi indicator</u></p> <p>Solid green: Wi fi network detected Off: Wi fi network not detected</p>
	<p><u>Voyant mode</u></p> <p>Green fixe: Affichage SOC (level) battery in progress (temporary affichage following button press). Off: Affichage standard in progress</p>



1.3 List of faults

Intitulé	Action
Lightning fault	Check the condition of the PF10 / PF20 arresters
RS485 communication fault with the inverter	Check the connections between the inverter and the PLC (OND1 / API1)
RS485 communication fault with the BMS A16	Verify the connections between PLCs (PLC1 / PLC2)
Unit start-up fault	Check the status of the AC circuit breaker QF10, the generator set and the connections
PV fault (24h without production)	Check the status of the PV circuit breaker QF20
RS485 communication fault with the dimmer	Verify the connections between PLCs (PLC1 / GDT1)
CAN communication fault between BMS A16 and battery	Verify the connections between PLC and battery (PLC2 / BAT)
CAN communication fault between BMS A16 and inverter	Verify connections between PLC and inverter (PLC2 / OND1)
Battery fault EMSAbsent	Restart the batteries by switching off QF30
Battery fault IBMSConfigurationProblem	
Battery fault NumberOfSlaveProblem	
Battery fault PowerBusInformation	
Low battery voltage	
Battery voltage high	
Battery fault GlobalBMSAlarmState	
Inverter fault FaultList	Restart by switching off all circuit breakers, wait 1mn then restart
Inverter Fault Inverter Alarm Information	
Inverter fault Internal Information	
Inverter Fault Battery Fault Information	
Inverter Fault PackFaultSN	
BMS fault wFaultAutomateSyst	Restart the batteries by switching off QF30
BMS fault wFaultBmsSyst	
BMS Fault0_7	
BMS Fault Fault8_15	
BMS Fault16_23	
BMS Fault24_31	
BMS Fault32_35	
Low battery temperature	Check the room temperature
Low battery level	Alert
Low battery health level (SOH)	Alert
High battery temperature	Check the room temperature
High temperature Dimmer heatsink NTC	Check the room temperature and check the state of the ventilation
Dimmer internal NTC high temperature	
WIFI detection fault	Check the connections



1.4 Safety instructions and warning

Attention

Any damage resulting from non-compliance with this user manual will void the warranty! We do not accept any liability for damage to property or personal injury caused by incorrect handling or failure to observe the safety instructions.

From a safety point of view, this equipment has left the factory in perfect condition. In order to maintain this equipment in good condition and to ensure its correct use without risk, the user must observe the safety instructions and warnings contained in this manual. In industrial installations, the accident prevention regulations for electrical installations and equipment must be observed. The installation of this type of equipment must always be carried out by a competent professional. Opening covers or disassembling parts may expose live parts; before working on the equipment, it must be disconnected from all voltage sources. However, the unit's capacitors may still be charged even when the AEA3000+ has been disconnected. The AEA3000+ cabinet must be installed in a room with an ambient temperature. If the unit is no longer functioning properly, it should be disconnected from the power supply and prevented from being switched on again. In this case, contact your installer.

Please observe the following pictograms:



Caution. On the product label, this symbol indicates that the notice must be consulted. In this manual, this symbol indicates important information.



Direct current



This device is CE approved and complies with national and European guidelines.

1.5 Protective device

A short circuit protection system must be fitted to the 24 volt DC supply to the PLC. These fuses shall be sized according to the number of devices in series behind the feeder.

1.6 Elimination



Old electronic devices are recyclable products that should not be thrown in the trash. If the device reaches the finish of its life, it must be disposed of in accordance with the legal regulations in force at the recovery centres in your municipality. Disposal in household waste is prohibited.

1.7 Cleaning

For cleaning, use a clean, dry, antistatic, lint-free cloth without corrosive products.



1.8 Identification of the AEA 5000

To identify the AEA 5000, a label with a barcode is attached to the inside of the cabinet door. The serial number (SN) is shown in the third row of the table.





1.9 Operating principle



Energy from the renewable source is used for consumption as a priority. If there is excess energy production, it is stored in the battery. If the battery reaches a full charge level, the power of the panel will be limited so as not to send power to the grid (in case of sale to the grid, refer to paragraph 2.4)

For the case where the renewable energy production is insuffisante, the additional energy needed for consumption is provided primarily by the battery. If the battery reaches a low charge level, the missing energy is drawn from the power grid.

In case the demand is higher than the maximum power of the cabinet, the additional power is supplied by the grid.



2. Commissioning

2.1 Installation of the batteries

The AEA 5000 cabinet is designed to accommodate Phenix Batteries. For further information on the batteries, please refer to the enclosed manual. The batteries are delivered with their power cables. The communication cable to be connected to the battery is already connected in the cabinet.

2.2 Installation of batteries

Caution

Before dismantling the door, make sure that the power sources are switched off via all circuit breakers.

2.2.1 Removing the front door



1. Unscrew the 4 screws above the cabinet and lift the roof.
2. Pull out the front of the cabinet

2.2.2 Installing several batteries



1. Slide the battery on the guide rails to the bottom to leave room for the next one. Facing the cabinet, the DB9 communication socket should be on the left.
2. Slide the second battery onto the guide rails, always with the DB9 socket on the left.



2.2.3 Connecting the batteries

Connect the black connectors to black terminals and the orange connectors to orange terminals



2.2.4 Connection of the communication cable

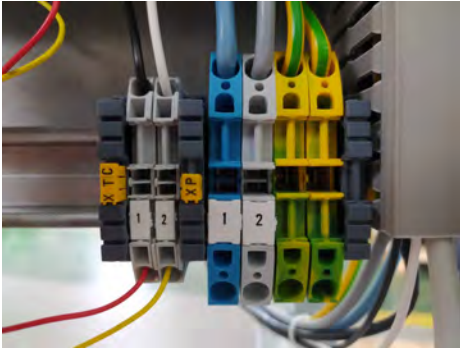
Connect the communication sockets (multicolored cable). The plug at the end of the cable should go to the DB9 socket on the back battery and the other socket closest to the front panel.

Caution
Make sure that the plugs are correctly inserted.



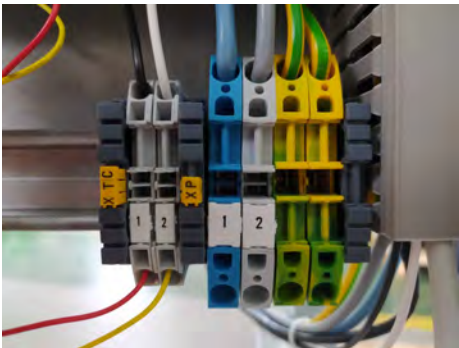


2.2.5 Network connection



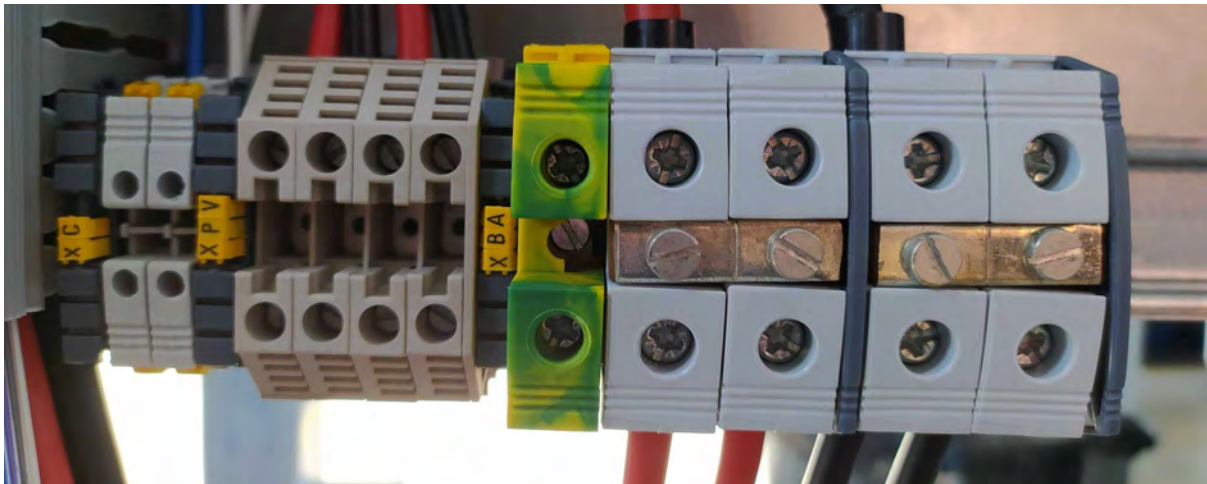
Connect the cabinet to the mains as follows: connect neutral to terminal 1 of the XP terminal block, phase to terminal 2 and earth to the adjacent earth socket.

2.2.6 Connecting the measuring torus



Connect the ORANGE to the XTC terminal block, fil red to terminal 1 and fil yellow to terminal 2. Attach the ORANGE to the phase of the incoming customer on the main line of the dwelling afin to measure all consumption: the flèche in the ORANGE must be directed to the mains. When installing the extension cable for the toroid, be careful to respect the following connection: red fil on the left and yellow fil on the right as shown in the photo (max length 15m).

2.2.7 Connecting the photovoltaic panels



Connect the panels to the XPV terminal block: the positive polarity cable from the panels under the red cable and the negative polarity cable under the black cable.



2.2.8 Switching on the batteries



Warning

To be done at power up: the batteries are switched on by operating the circuit breaker QF30. The LEDs on the batteries flash and then turn fixe green.

Caution

This action closes the circuit and there is now voltage at the XBA and QF30 terminals.

2.2.9 Option: Router configuration



The router must be supplied with 12V with the cable coming from the terminal block XC. It must also be connected with the RJ45 cable. View the photo.



To do this part:
Circuit breaker ID10: - green led on (system connected to the network)

Circuit breaker QF10 : - Sur ON

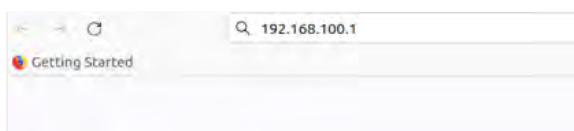
Have a computer or smartphone WiFi client connection available



Step 1 :

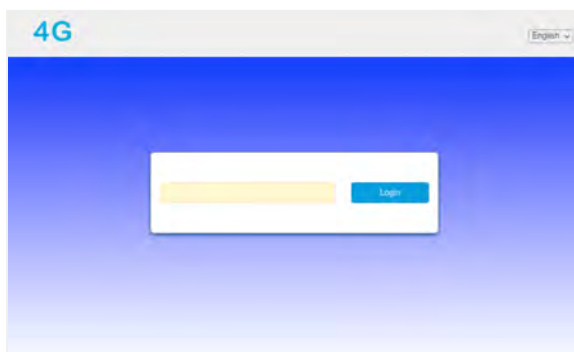
Go to the wi fi settings of your computer or smartphone to search for nearby networks. Select the router. Her name is "AEA_21360xxx" (corresponding to the serial number of the cabinet). In the image below after clicking on "connect" a password will be asked for the password. This is the AEA number (2136xxxx)

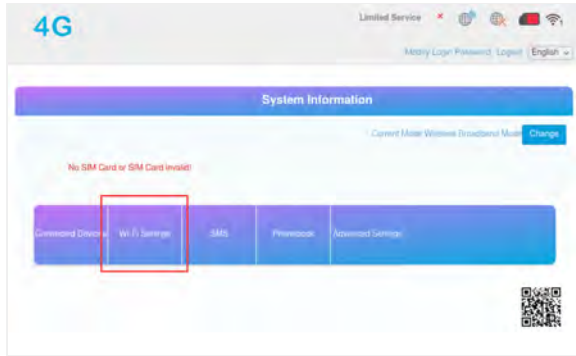
Step 2 : Once connected to the router, go to an explorer: Mozilla, Explorer, Chrome of your choice. Type in the top bar: 192.168.100.1 Start a reseach



Step 3 :

Enter the password "admin" in the bar and press "login".





Step 4 :

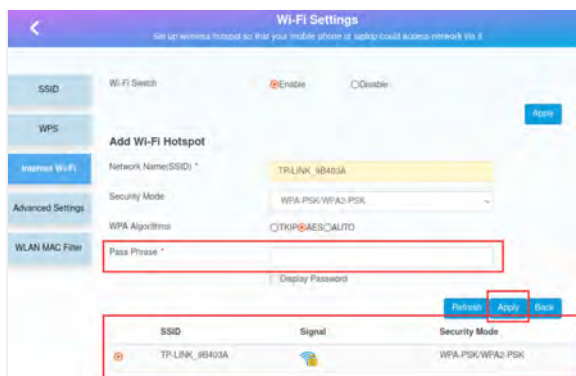
You arrive on this page. Click on "WiFi Settings"



Step 5 :

Go to the "Internet WiFi" tab

Then click on "Add"



Step 6 :

Select the customer's WiFi network from the list (at the bottom of the page) by clicking on the box to the left of the name.

Then type the client's WiFi password in "Pass Phrase".

Then click on "Apply"



Step 7 :

Check the box corresponding to the customer's WiFi network then click on "Connect".

To check if the manipulations worked, run an internet search (whatever).

If the search is successful, it works and the cabinet is connected to the Internet.



2.3 Option: Hot water tank management

2.3.1 Control of the domestic hot water tank

The AEA 5000 offers the possibility of controlling a resistive DHW tank in order to optimise the use of photovoltaic energy.

If the option is activated, the heating of the hot water tank will take priority over the charging of the batteries.

This means that the surplus solar energy will be used first to heat the water in the tank.

The heating is triggered when the surplus photovoltaic power is greater than the building's consumption and only at peak hours.

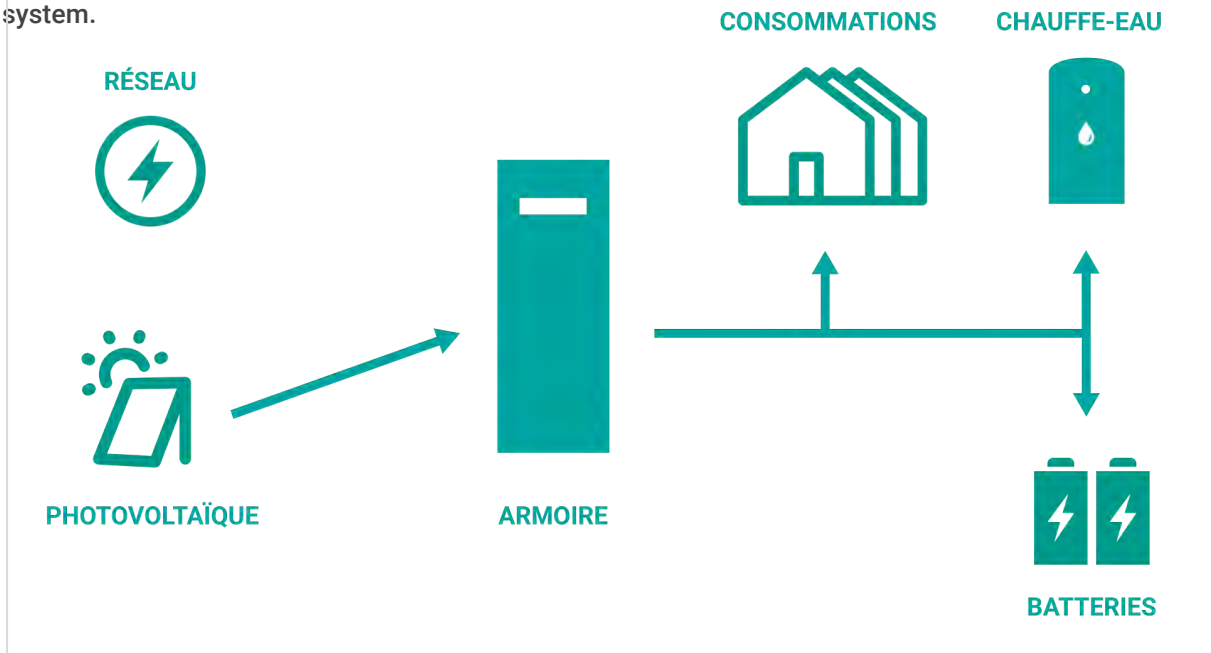
consumption of the building and only during peak hours. The heating power will be approximately equal to the surplus power. If there is no more surplus, the heating will gradually stop using the energy from the

If there is no surplus, the heating will be switched off gradually, using the energy from the batteries at that time.

The existing HP/HC contactor remains functional in its HP/HC or forced on principle,

It controls an internal contactor in the cabinet which inhibits the dimmer. In off-peak hours, the storage tank is heated in the

In off-peak hours, the storage tank is heated in a conventional manner and no longer uses the dimmer system.



Sufficient production for: 1. consumption / 2. DHW / 3. batteries

2.3.2 Hot water tank connection (20A max.)

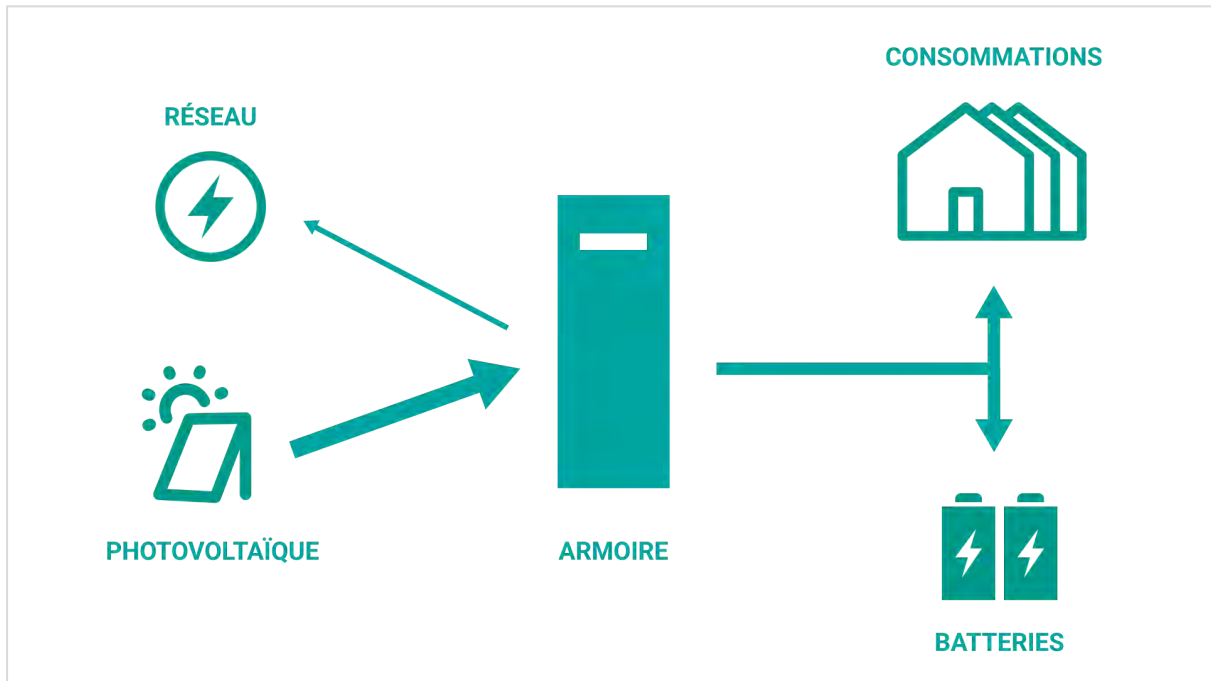


The hot water tank is connected to the XP terminal, neutral on terminal 5 and phase on terminal 6.



2.4 Option: Sale of energy from the grid

When this option is activated the priorities are to ensure the power supply to the building and the charging of the batteries. If there is a surplus, instead of curbing the production it will be directed to the grid. This option requires a contract to sell to the grid. To activate or deactivate this option contact your installer.



Case of sale to the network: If the power produced is sufficient, the surplus will be sent to the network. In the event that both options are activated, the order of priority will be as follows:

1. Consumption of the building
2. Heating of the balloon
3. Charging the batteries
4. Network sales

2.5 Option: Backup output

2.5.1 Management of the backed-up output

The AEA 5000 has a back-up output, which provides a temporary source of power in the event of a power failure, voluntary or otherwise. This output is powered when the system is powered up and remains powered if the mains input is cut off.

The batteries take over the mains supply on this back-up output by generating an AC output voltage (230VAC), similar to the mains input.

2.5.2 Connection of the back-up output

Connect the uninterruptible power supply to the XP terminal block, neutral to terminal 3 and phase to terminal 4.





3. Putting into operation

3.1 Power on / off

The front disconnectors are omnipolar switching devices that can be used for emergency breaking as well as for completely de-energizing the cabinet.

The switching devices on the front are preferably open when the cabinet is de-energized

See visual section 1.2.

Power On

1. Activate QF10 (mains circuit breaker in inverter)
2. Activate QF11 (if present)
3. Activate QF30 (battery circuit breaker)
4. Activate QF20/21 (photovoltaic circuit breaker)

Switching off

1. Switch off QF10 (inverter input mains breaker)
2. Switch off QF11 (if present)
3. Switch off QF20/21 (photovoltaic circuit breaker)
4. Switch off QF30 (battery circuit breaker)

Warning

There is still the mains voltage at the XP terminal block. To do this, the power supply must be cut upstream.

3.2 Control of correct operation

To check that it is working properly, you will have to check the MyHome & me application (<https://myhomeandme.fr/>) to see that the information is present and that it is consistent.



Contacts

France

Sirea
1 rue Jean Perrin
81100 Castres
Phone: +33 5 63 72 93 92
Mail: contact@sirea.fr

Spain

iAR
Calle de Arcadio María Larraona, 1, 2º
31008 Pamplona, Navarra
Phone: +34 948 067 152
Mail: a.monreal@sireagroup.com

Cambodia

Kynex
Phnom Penh, KH
Phone: +855 69 81 49 61
Mail: go@kynex.biz

Burkina Faso

Sirea-Afrique
BP11 Kamboisin
Ouagadougou
Phone: +226 70 73 76 37
Mail: contact.sirea.afrique@gmail.com

© SIREA. All Rights Reserved.

No part of this document or any of its contents may be reproduced, copied, modified or adapted, without the prior written consent of the author, unless otherwise indicated for stand-alone materials.