

Basic Series Manual

moduBasic AC Energy Storage



Modual AG

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6 August
2026

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1 Product description

The Basic AC series combines effortless operation with powerful functionality. It is the ideal energy storage solution for a wide range of applications, such as medium-sized and larger residential buildings. This series focuses on user-friendliness and versatility, with the clear aim of significantly improving self-consumption optimisation and self-sufficiency for solar installations.

The energy storage units in the Basic AC series can be connected directly to the domestic electrical installation and operate independently and autonomously. In addition, the storage unit supplies the connected grid with power in the event of an emergency via the integrated emergency power connection.

2 Contents of the package

Before installation, please ensure that the product has not sustained any damage during transport. In particular, PowerUnit battery modules (cell trays) damaged during transport must not be installed or connected for safety reasons.

Please also check that all items included in the delivery have been supplied in perfect condition. If there are any discrepancies, please contact the supplier, manufacturer or seller.

The associated equipment mentioned in the glossary is included in the delivery. The cable length is tailored to the product purchased.

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2.1 Glossary for AC and DC storage systems

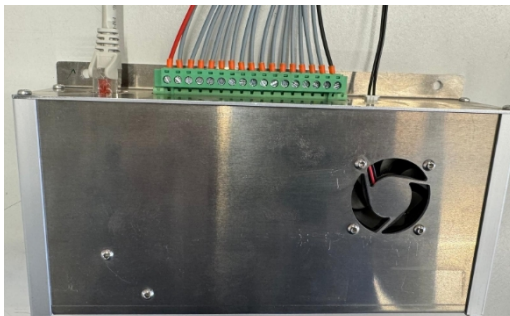
AC	DC	Term	Explanation	Related material	
	x	<i>LogicUnit</i>	Consisting of a busbar and a LogicBoard. Control unit for the energy storage system – yellow housing.	2x	M5 mounting screw
				1x	Yellow housing cover
x		<i>AC unit</i>	Enables direct connection to the domestic electrical installation via the integrated inverters and a hard-wired cable connection (connection box)	1x	Service panel
				2x	M5 mounting screw
				1x	Yellow housing cover
x	x	<i>PowerUnit</i>	Complete PowerUnit assembly, consisting of up to three cell trays, a PowerBoard and the housing (including covers). The cell trays are connected in series to form a single battery unit	1x	White front cover for housing
				1x	BMS Communication cable (RJ45)
				1x	BMS Y-cable (green plug)
				1–3x	Cell trays
				1	Battery connection cable, black
				1	Battery connection cable, red
				10x	M5 Torx mounting screw

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Other terms	
<i>BMS Communication cable</i>	Used for communication between the LogicBoard and PowerBoards. RJ45 cable (shielded patch cable).
<i>BMS balancing cable</i>	Connects the cell trays to the PowerBoard. (May vary depending on the battery module) 
<i>LogicBoard</i>	Logic component of the BMS. Controls the storage system with all PowerBoards and ensures smooth operation. (Pre-assembled on the LogicUnit / AC-Unit) 
<i>PowerBoard</i>	Monitors and regulates the individual cells of a PowerUnit and is therefore part of the BMS. 

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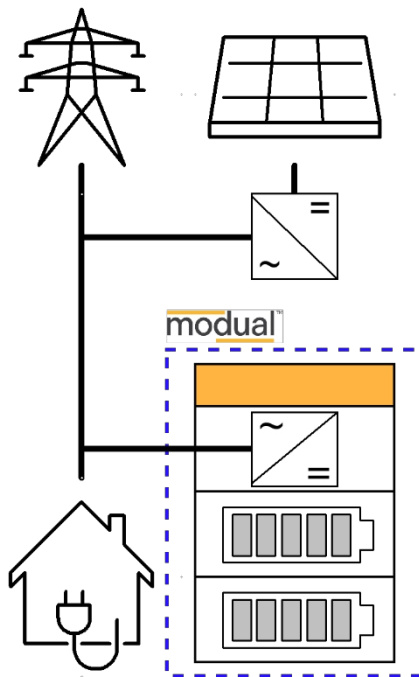
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3 Schematic diagram

The Basic AC series is connected directly to the domestic electrical installation. This makes it possible to install and operate the storage system independently of the PV system. The solar system and the storage system are separate system units which, whilst working together, can also function independently of one another.

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4 Installation

4.1 Mechanical installation

4.1.1 General safety instructions



In Switzerland, the installation, commissioning and maintenance of the energy storage system must be carried out exclusively by a licensed installer.

The following standards and regulations must be strictly observed:

NIV — Ordinance on Low-Voltage Electrical Installations (SR 734.27)

NIN SN 411000:2025 — Low-Voltage Installation Standard, in particular Chapter 7.12 (Generation systems and storage systems)

ESTI Guideline 220/Version 0621 — Safety requirements for stationary energy storage systems

SNR 460712:2018 — Stationary electrical energy storage systems

VSE NA/EEA-NE7-CH 2025 — Grid connection for energy generation installations on the low-voltage grid

Works regulations and technical connection conditions (TAB) of the relevant distribution system operator (DSO)

Cantonal fire safety regulations

VDE-AR-N 4105:2026 — Connection and operation of generation facilities to the low-voltage grid (D-A-CH); Basis for the grid coupling unit / grid connection protection **EN 50549-1:2019 +A1:2023** — Requirements for generation facilities for parallel operation with distribution networks (harmonised basis for grid connection protection)

Compliance is verified by an independent inspector as part of the safety certification acceptance procedure (SiNa) in accordance with NIV.

Please observe the safety instructions when carrying out any work on or with this product in order to prevent personal injury, damage to property and environmental damage. The safety instructions can be found in the Modual document “General Information and Safety Instructions”.

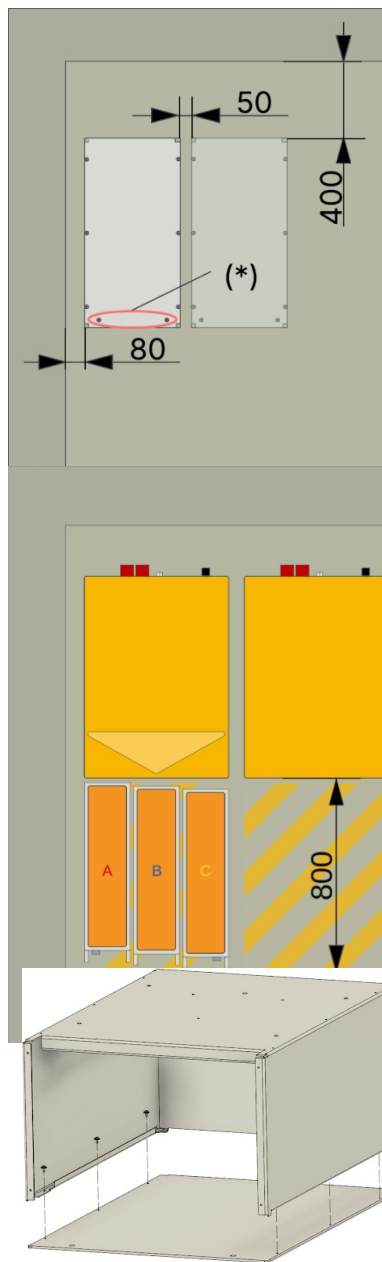
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4.1.2 Positioning and installation of the base plate



Short side of the storage unit:

During installation, ensure that the rear of the storage unit (fan side, connection box) is **at least 400 mm away from the wall** so that the fans can cool the system unobstructed.

The front (2 countersunk screw holes in the base plate) with the service openings (sheet metal opening) must be accessible to the customer and service personnel; a space of at least 800 mm in front of the storage unit is required for maintenance work.

Long side of the storage tank:

The minimum distance from walls is 80 mm on the long side. To ensure access for maintenance and servicing work, a minimum distance of 50 mm must be maintained between two AC energy storage units installed side by side.

Top of the storage unit:

To ensure safety and adequate heat dissipation, a clearance of at least 400 mm must be provided above the storage unit. **No flammable materials** must be present in this area.

(*) Fixing:

If necessary, the base plate can be screwed to the floor using countersunk screws. *The countersunk screws are not included in the scope of delivery.*

1. Mount the housing on the base plate

The entire storage tank is assembled on the base plate. Mount the first sheet metal housing on the base plate with the open side facing upwards, as shown in the illustration. Then secure the housing to the base plate at the designated positions using the supplied **M5 screws**.

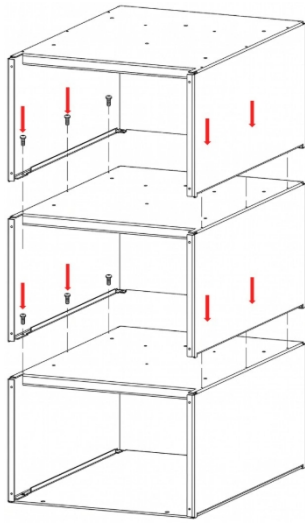
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4.1.3 Assembling the housing

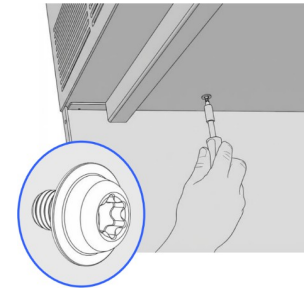


Mounting the housing on the base plate

The entire storage unit is assembled on the base plate. Place the first sheet metal housing on the base plate with the open side facing up, as shown in the illustration. Then secure the housing to the base plate at the designated positions using the supplied **M5 screws**. Stack the required number of housings on top of one another and secure them with screws.

The AC unit is screwed on from below at the end.

A maximum of four PowerUnit housings may be stacked on top of one another.



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4.2 Electrical connection

4.2.1 Connecting the battery cables

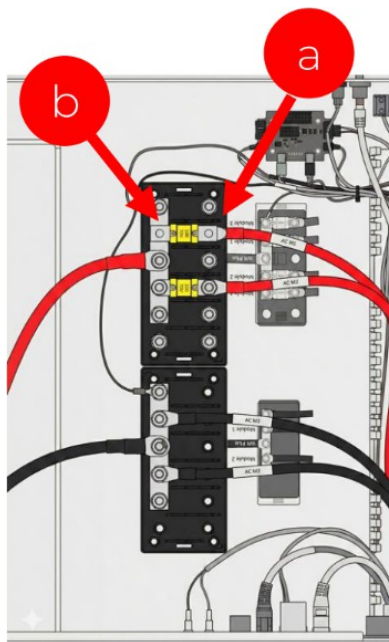
The **PowerUnits** are numbered **starting from the top with number 1**. The second PowerUnit from the top in a storage unit is numbered 2, and so on.

Connect the supplied DC cables to their respective terminals. The battery cables are clearly assigned to the PowerUnits – therefore, please ensure that they are correctly assigned and that the **polarity of the cables (positive/negative) is correct** (see the labelling next to the terminals).

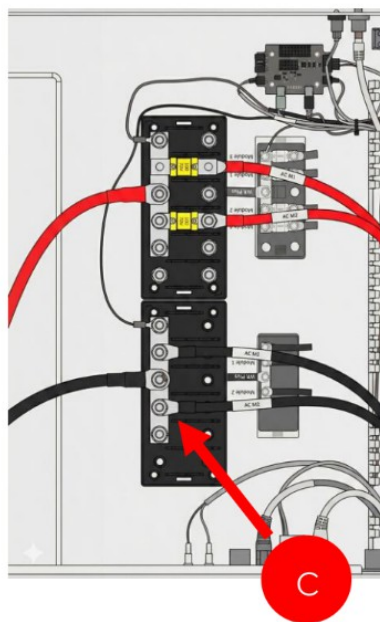
The nuts must be tightened to a torque of 10 Nm.

(Position 1) – The positive terminals (**red**) are connected to the terminals fitted with fuses.

(Position 2) – Connect the negative terminals (**black**) to the terminals without fuses.



- (a) Fit the **red** (+) cables.
- (b) Fit the **yellow** fuse; tighten to 10 Nm.



- (c) Fit the **black** (–) cables; tighten to 10 Nm.

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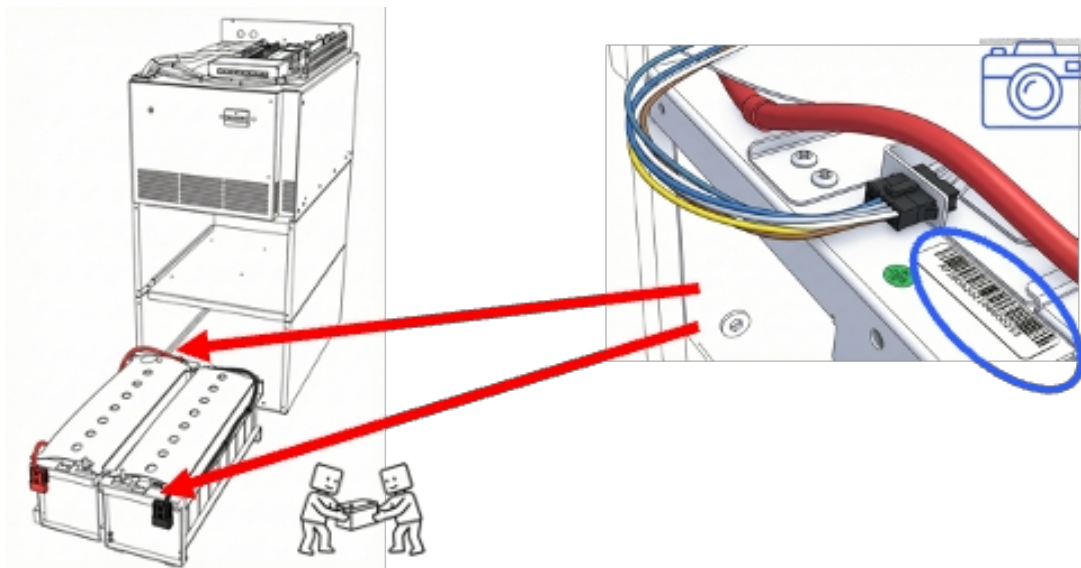
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4.2.2 Fitting the battery modules (cell trays)

**Caution:**

- The battery terminals must not come into contact with the sheet metal housing during installation!
- The battery modules are very heavy and must be inserted by at least two people.



Place two modules in front of the housing: + **(red)** on the left, – **(black)** on the right.

IMPORTANT: Connect the **PowerBoard connector** on the left-hand module with the **yellow** label, and take a photo of the nearby barcode for the registration form.

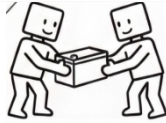
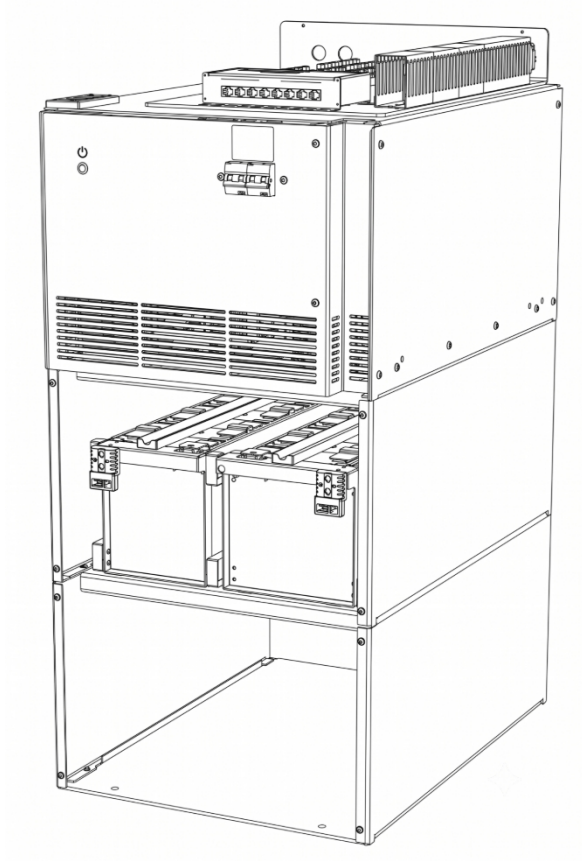
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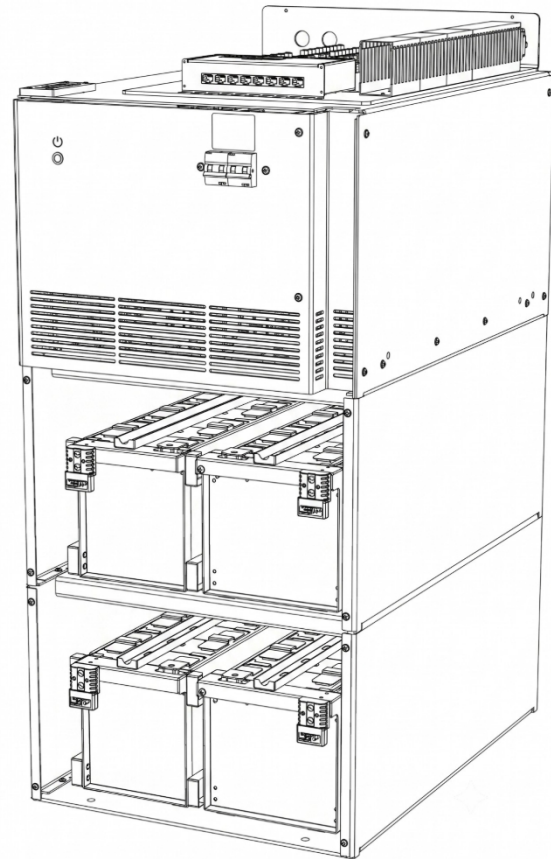
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Slide the modules into the housing.



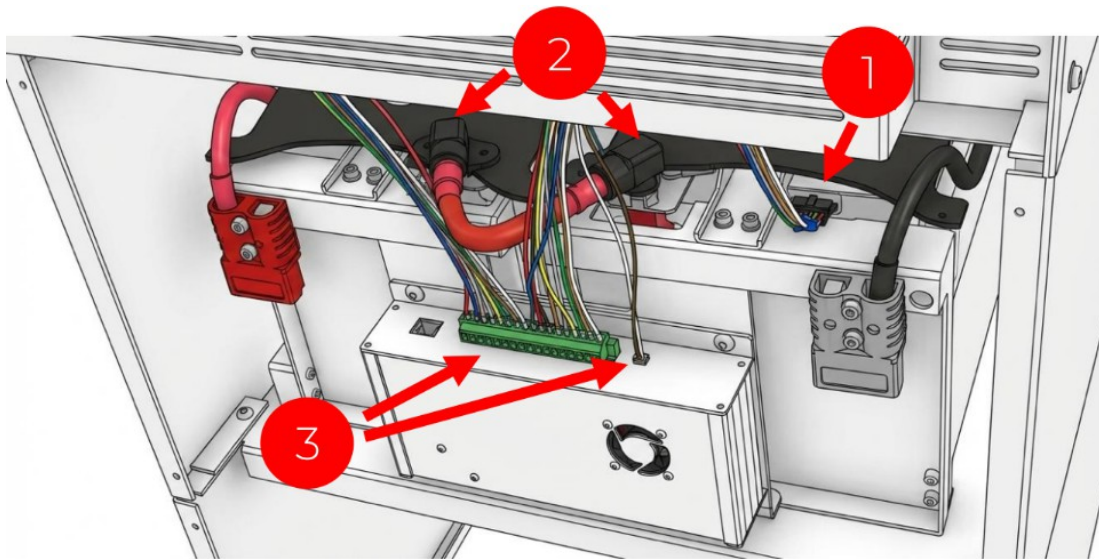
Repeat the process for the remaining modules.

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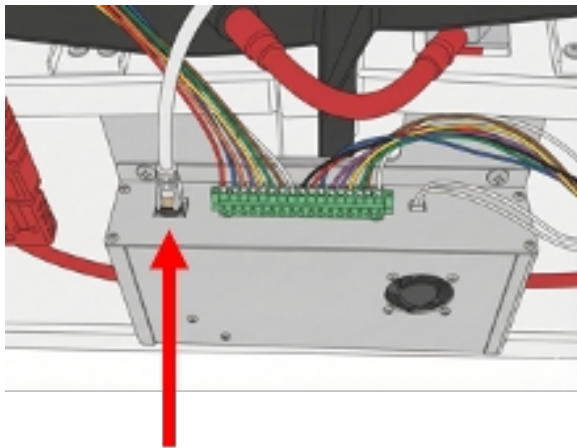
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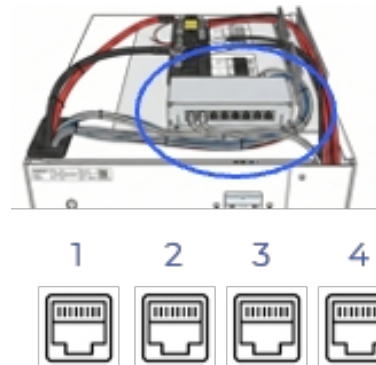
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- (a) Connect the PowerBoard cable to the right-hand module.
- (b) Connect the modules using the red connecting cable.
- (c) Connect the PowerBoard to the green and white plugs.



Connect the LAN cables from the AC unit to each module's PowerBoard.



PowerBoard Module 1
PowerBoard Module 2
PowerBoard Module 3
PowerBoard Module 4

4.2.3 Electrical connection to the domestic wiring

The energy storage system must be connected to the domestic electrical installation in strict accordance with NIN SN 411000:2025, in particular Chapter 7.12. The system is to be classified as an energy generation and storage system operating in parallel with the grid.

The connection must be carried out exclusively by a licensed installer. Before commissioning, the system must be registered with the relevant distribution system operator (DSO) and technical connection approval (TAG) must be obtained (see section 4.2.3.3).

4.2.3.1 AC connection

The storage unit is connected to the domestic electrical installation via a hard-wired cable connection (connection box on the unit, 3L+N+PE, 3x400V AC).



The supply cable must be routed as a **separate, individually fused circuit** directly from the main distribution board in accordance with NIN SN 411000:2025, Section 7.12. **Supply via an existing end circuit is not permitted.** Otherwise, there is a risk of the end circuit becoming overloaded due to the additional current flow from the storage unit.

Requirements for the supply cable

Minimum cross-sectional area: $5 \times 2.5 \text{ mm}^2 \text{ Cu}$ (3L + N + PE), dimensioning in accordance with NIN based on cable length and installation method.

Fuse protection: RCD/circuit breaker 4P, characteristic C, 16 A, 30 mA, type A.

The supply cable is intended solely for connecting the energy storage system; it must not be used as a final circuit for other loads.

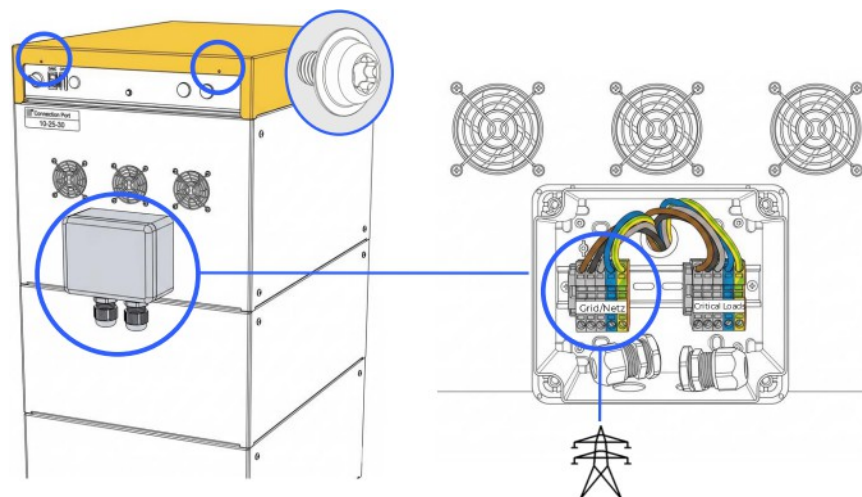
The fuse in the distribution board must be clearly marked (see section 4.2.3.3).

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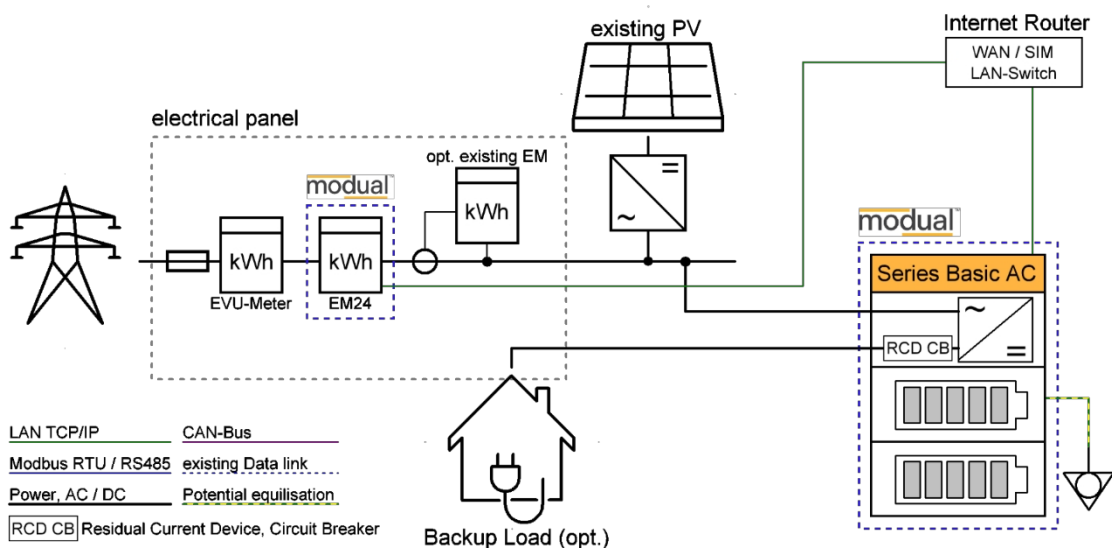


Secure the top cover with 2x M5 screws.

Fit the left-hand cable gland, route the supply cable (mains) into the housing and connect it to the left-hand terminal block. Connect the right-hand side only if required (emergency power).

Energy meter

Furthermore, a compatible energy meter (e.g. Carlo Gavazzi, EM24 — 3-phase — max 65 A per phase + display + Ethernet, REL200200100) must be installed downstream of the electricity meter. Follow the instructions in the energy meter's manual for correct installation. (If the mains supply to the property is > 65 A, please contact us so that we can find a suitable energy meter.) If a SolarManager system with an energy meter is already in place, no additional energy meter needs to be installed.



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4.2.3.1.1 Emergency power connection

The emergency power connection is protected by an internal RCD/circuit breaker (4-pole, characteristic C, 16 A, 30 mA, type A). A 3-phase emergency power unit (3 × 400 V AC, 16 A, min. 5 × 2.5 mm²) can be connected to this terminal.

Important notes

- The emergency power unit must be configured as a separate circuit within the building's electrical installation and must be supplied exclusively from the emergency power connection.
- During normal operation (when mains power is available), the emergency power unit is supplied directly from the mains input via the inverter's internal transfer switch; in the event of a mains failure, it is automatically supplied by the inverter.
- The emergency power unit's TN-S protection class is maintained in both operating modes (in normal operation via the transfer switch, and in emergency power operation via the inverter's internal earthing relay).
- Feed-back from the emergency power unit into the distribution network is structurally prevented.
- The maximum discharge power [kW] of the storage system must be observed as the upper limit of the simultaneous load.
- Ensure that the connection is made correctly and securely.

For further information on emergency power operation, please refer to Chapter 6.

4.2.3.1.2 Equipotential bonding in accordance with

The equipotential bonding conductor must be connected to the screw provided for this purpose. The screw is pre-fitted to the LogicUnit with a spring washer and is intended for this purpose. The equipotential bonding conductor must be connected to the property's main equipotential bonding system with low resistance. The low resistance must be verified metrologically as part of the SiNa acceptance test (loop impedance, protective conductor measurement).



4.2.3.1.3 Disconnection device

In accordance with NIN and ESTI Guideline 220, it must be possible to disconnect the energy storage system from the distribution network on all poles at any time.

As the storage unit is hard-wired (device-side connection box, 3L+N+PE, 3x400V AC), the RCD/circuit breaker protection described in section 4.2.3.1 and the

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system switch (main switch) installed by the electrician in the main distribution board act as an all-pole disconnecting device for the mains supply.

The isolating device must be easily accessible, clearly assigned to the storage tank and labelled accordingly (see Section 4.2.3.1.4).

In addition, the storage unit is fitted with a main switch (see Section 5.1 and the 'BATTERY MAIN SWITCH' label on the unit) for switching off the unit at source. In the event of servicing, both isolating devices must be operated.

4.2.3.1.4 Labelling in the domestic electrical installation

In the main distribution board

On the RCD/circuit breaker protecting the supply line to the storage unit: information sign 'Supply line to ESS module — no terminal circuit, not for other loads'

On the distribution board door: Warning symbol 'Power feed-back into the domestic mains' in accordance with ESTI Guideline 220.

On the storage unit's connection box

'modual ESS connection — not for other loads'

On the frame

Manufacturer's type plate (present; must not be removed by the installer) Information sign 'MAIN SWITCH' (already present — switch-off sequence)

In the installation room

Sign indicating the location of the mains isolator and emergency contact details.

4.2.3.2 Internet connection

The storage unit must be connected to the home network or the internet via a cable in order to operate.

Make sure that a connection is available at the installation site and connect the storage unit to the network. Also ensure that the energy meter is connected to the same network.



4.2.3.3 Registration with the distribution network operator

Before commissioning, the energy storage system must be registered with the relevant distribution system operator (DSO). Registration is carried out by a licensed installer and typically involves the following documents:

- Connection application / application for technical connection approval (TAG) in accordance with the DSO's installation regulations

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- Installer's certificate of conformity (SiNa); product-side NA protection conformity in accordance with VSE NA/EEA-NE7-CH 2025 forms part of the manufacturer's declaration of conformity.
- Data sheet for the energy storage system and a copy of the single, comprehensive manufacturer's declaration of conformity (including the grid connection standards VSE NA/EEA-NE7-CH 2025, EN 50549-1 and VDE-AR-N 4105)
- Schematic diagram of the electrical installation and site plan

The system may only be connected to the distribution network and commissioned once the technical connection approval (TAG) has been issued. The TAG forms part of the system documentation and must be kept by the system operator.

4.3 Fitting the covers

**Note**

If on-site commissioning by Modual AG has been arranged for the installation, the covers will not be fitted and you may skip this section.

Ensure that all electrical connections have been correctly made before fitting the covers.

The Logic Unit cover (yellow lid) is slid into place using the tabs on the front of the unit and then secured with two M5 screws at the rear.

The covers of the power units are each secured with four M5 screws.

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5 Commissioning

The system must not be commissioned until the entire assembly – both mechanical and electrical – has been completed!

5.1 Initial commissioning

Initial commissioning must be carried out exclusively by a licensed installer and requires the technical connection approval (TAG) from the distribution network operator (see Section 4.2.3.3).

The following requirements must be checked prior to commissioning:

1. Visual inspection of the electrical installation (permanent cable connections/connection box, system switches and isolating devices, labelling)
2. Metrological testing in accordance with NIN (insulation, loop impedance, RCD tripping, protective conductor test)
3. Existence of the technical connection approval from the distribution network operator
4. Start the system by switching on the main switch/service switch at the rear of the storage unit and pressing the round push-button at the front of the storage unit. The storage unit will take a short while to initialise a Wi-Fi connection.
5. Connect to the storage unit's Wi-Fi network. The network name (SSID) corresponds to the device's serial number (e.g. P-H-350-000399)
The Wi-Fi password for the battery storage unit is: **battery_storage**
Note: Android-based mobile devices may warn that there is no internet connection via this network. Confirm that you still wish to proceed with the connection.
6. Open the URL <http://10.10.10.10> in a browser to connect to the energy storage unit.
7. Launch the installation wizard and follow the instructions. Please note that providing incorrect information may result in the system not functioning properly or the loss of your warranty.
The data is required for remote maintenance and servicing.
8. Once the restart has been completed successfully, the storage unit is ready for operation.
9. Check the status of the storage unit in the web portal
 - a. Does the storage unit have an internet connection?
 - b. Is the storage unit operational ("Operational")?
 - c. Has the number of PowerUnits been entered correctly?

In this step, please also complete the "Storage Unit Registration Form" and obtain the storage unit-specific details from the web portal.

You will find the form at the end of this document. Further details can be found in the warranty terms and conditions.

10. *(For emergency power systems only:)*
Once the storage unit has fully started up, the RCD can be switched on.

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Should an error occur during the start-up process, the storage unit will emit an audible signal and the push-button will light up red. In this case, switch off the system and check the connections as described in section 4.2 (particularly the communication cables). Then restart the storage unit using the rotary switch as described in section 5.1.1.

If the fault persists, please contact Modual AG on +41 41 244 05 55 and describe the fault symptoms.

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5.2 Battery control

5.2.1 Control via the Solar Manager

Add the battery to the Solar Manager as usual.

To obtain the correct IP address, use an IP scanner. Search for a device named "**einstein**" or "**venus**" and use its

IP address to integrate it into the Solar Manager.

Check the Solarmanager settings. To actively control the storage unit, "**Battery Standalone Mode Allowed**" must be set **to disabled**.

5.2.2 Control via an energy meter

If the energy meter is to be connected directly to the storage unit, please contact **Modual AG**.

Please have the **storage unit's serial number** to hand (e.g. **P-H-350-000399**) so that you can provide it to the manufacturer.

5.2.3 Control via Loxone (Modbus-TCP)

To control the storage unit using Loxone, it is best to contact Modual AG directly. They will provide you with the necessary information and support for integration.

5.3 Safety Certificate and Certificate of Conformity

Following successful commissioning, the licensed installer will draw up the safety certificate (SiNa) in accordance with NIV. This confirms that the installation complies with NIN SN 411000:2025 and ESTI Guideline 220.

The complete system documentation must include at least:

- This installation manual
- Declaration of Conformity from the manufacturer (Modual AG) — the sole, comprehensive DoC including the grid connection standards (VSE NA/EEA-NE7-CH 2025, EN 50549-1, VDE-AR-N 4105)
- Safety certificate (SiNa) from the licensed installer
- Installer's declaration of conformity for grid connection (product-side grid connection protection conformity is included in the manufacturer's declaration of conformity)
- Technical Connection Authorisation (TAG) from the Distribution Network Operator (VNB)
- Measurement and test report for commissioning
- Completed storage facility registration form (see Chapter 9)

The system documentation must be kept by the system operator and presented upon request by the authorities (ESTI, VNB, inspector).

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2026

6 Operational information

6.1 General information

The storage system requires no attention from the customer during operation. The system controls and monitors itself autonomously. As part of its self-maintenance, the storage system may occasionally discharge itself from the grid to ensure that the best possible capacity and availability are always maintained and that the state of charge remains within the optimum range. This is purely a safety and maintenance measure.

6.2 Emergency power operation

A 400V emergency power unit can be connected to the emergency power connection. The maximum discharge power [kW] of the storage system must be observed here. If this is exceeded, the storage system switches off automatically. Voltage is present at the emergency power connection at all times, but it is not uninterrupted.

The remaining capacity of the storage unit at the time of the power cut determines how long the emergency power unit can be supplied by the storage unit. If the storage unit is empty, it switches off automatically.

7 Switching off & dismantling

The storage unit can be switched off using the main switch. This deactivates all functions of the storage unit. The fuse in the domestic distribution board should also be switched off.

To dismantle the storage unit, follow the installation instructions in reverse order;

1. Switch off the mains disconnect switch (system switch); the hard-wired cable connection must be disconnected by a licensed electrician.
2. Start by removing the covers
3. Next, disconnect the battery connectors from the cell trays first
4. Once the cell trays have been disconnected, the balancing cables, BMS communication cables and temperature sensor cables can be removed
5. As a final step, the cell trays can be removed from the PowerUnits

Ensure that all removed cables are stored together with the battery.

You can find the storage requirements and further instructions in the document "General Information and Safety Instructions".

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8 Maintenance

8.1 Faults

If a fault occurs in the storage unit, operation is paused and the storage unit enters fault mode, depending on the type of fault. It emits a periodic audible signal.

8.1.1 Procedure in the event of an internet outage

The storage unit will be able to continue normal operation without an internet connection. However, remote maintenance and software updates will no longer be possible, so it is important that the storage unit is able to re-establish a network connection as soon as possible. If the storage unit remains inaccessible for more than two weeks, the warranty will lapse.

Ensure that the home network at the installation site is functioning correctly and check the Ethernet connection on the storage unit.

If the fault persists despite the network being active, contact your installer or Modual AG.

8.1.2 What to do after a power cut

The storage unit requires no action from the user following a power cut. Information on the storage unit's emergency power operation can be found in section 6.2.

8.1.3 What to do in the event of a total failure of the energy storage system

If there is a fault with the storage unit that requires servicing, the unit will emit an audible signal. Switch off the storage unit and contact your installer or Modual AG.

8.2 General maintenance

Occasionally clean the Modual energy storage system to remove dust and deposits using a dry, soft cloth or, for heavier soiling, a soft brush. The ventilation openings on the AC unit are particularly important. Ensure that the airflow is not obstructed at any time. Insufficient airflow can lead to the system overheating and a reduction in output power!

**Note**

Do not use solvents, scouring creams or corrosive substances when cleaning.

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9 Storage Registration Form

Serial number of the energy storage unit/commissioning date

Serial number		Commissioning date	
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Serial number of the battery modules (barcode)

Module 1	A B	Module 2	A B
Module 3	A B	Module 4	A B

Details of the operator (owner) entitled to the guarantee

Surname, first name	
Address	
Email	
Telephone	

Details of the responsible installer/specialist partner

Company	
Surname, first name	
Address	
Email	
Telephone	

Confirmation

By signing this document, the installer and/or specialist partner confirms that the energy storage system has been professionally connected and installed and commissioned in accordance with the installation requirements.

Place, date, signature	
------------------------	--

The fully completed form must be sent to Modual AG either electronically (kundendienst@modual.ch) or by post. It must be submitted within 30 days of successful installation.

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