


NOVA

Installation and user manual





**Congratulations on
choosing sustainable
energy storage for
your home.**

Installation and user manual

CONTENT

01	GENERAL INFORMATION	7
1.1	Validity	7
1.2	Application	7
1.3	Installation	7
1.4	Compatible Inverter	7
1.5	List of abbreviations	7
02	SAFETY	8
2.1	General	8
2.2	Emergency	9
03	PRODUCT OVERVIEW	10
3.1	Introduction	10
3.2	Battery control Box	11
3.3	Battery module	11
04	TECHNICAL DATA	12
05	BATTERY INSTALLATION	13
5.1	SoliTek packing list	13
5.2	Additional material	14
5.3	Recommended tools	14
5.4	Battery location	14
5.5	System installation	15

06	ENERGY MANAGEMENT SYSTEM (EMS)	18
6.1	Description	18
6.2	Configuration	18
07	OPERATION & WARRANTY	21
7.1	Operation	21
7.2	Warranty	21
08	MAINTENANCE & SWITCHING OFF	22
8.1	Maintenance	22
8.2	Switching Off The Battery	22
09	UNINSTALLATION & DISPOSAL	23
9.1	Uninstallation	23
9.2	Disposal	23

General Information

COPYRIGHT ©SOLITEK ENERGY UAB, 2023. ALL RIGHTS RESERVED.



No part of this manual can be reproduced or transmitted to the public platform in any form or by any means without the prior written authorization of SoliTek Energy UAB.

SoliTek Trademarks or registered trademarks mentioned in this manual are owned by SoliTek Energy UAB.

Version	Changes	Date
V2.0	NOVA 2 changes	November 2023
V1.1	3.1. - revised cable parameters. 4.3. - revised cable preparation. 4.5. - new pin setup. 4.7. - different wording. 5.3. - plant naming suggestion.	
V1.0	Original manual.	

NOTICE

While this manual will certainly be able to answer most of your doubts, it might be slightly outdated on certain specific points. If you encounter difficulties when following the manual, please check the solitek.eu website for its latest version.

1.1 | VALIDITY

This user manual is applicable to the Nova Battery (5–40 kWh), an energy storage unit that is designed to be used in residential applications.

This manual is subject to update without notice. For more product details and latest documents, visit the solitek.eu website for its latest version.

1.2 | APPLICATION

This user manual contains NOVA battery product, safety, installation, operation, and maintenance.

1.3 | INSTALLATION



The installation should be carried out by qualified personnel only. If the installation is done incorrectly, mechanical, and electrical hazards may arise and could lead to serious injury or death.

NOVA battery must be placed in a location that met following:

- A solid ground surface, able to uphold up to 400kg per square meter.
- The location must be out of the way for children.
- The location must not be under direct solar irradiation.
- The location must not be closer than 2m to a heat source.
- The location's altitude must not be higher than 2000m above sea level.
- The location's ambient temperature must be 0–35°C.
- The location's ambient humidity must be 10–50%.
- The location must not contain harmful gas, flammable/explosive/corrosive chemicals.

1.4 | COMPATIBLE INVERTER

The SoliTek NOVA energy system only has tested compatibility for SoliTek inverters. Attempting to install this battery with a different series of inverters immediately voids your warranty.

1.5 | LIST OF ABBREVIATIONS

Abbreviation	Definition
BCB	Battery Control Box
BMS	Battery Management System
EMS	Energy Management System

Safety

2.1 GENERAL

Please strictly follow these safety instructions in the user manual during the operation



All installation operations should be performed by trained and knowledgeable technicians, following local standards and safety regulations.

During installation, use se insulating tools and wear personal protective equipment (PPE) when operating the equipment to ensure personal safety.

To prevent personal injury or property damage and to ensure long-term operation of the batteries, follow up next points:

- Do not disassemble, modify, or replace any part of the battery or the power control unit without official authorization from the manufacturer.
- The inverter used with the battery shall be approved by the battery manufacturer.
- Do not place the battery in a high temperature environment. Make sure that there is no direct sunlight and no heat source near the battery.
- Do not use any defective broken, or damaged battery.
- The battery equipment is heavy. Please equip the corresponding personnel according to its weight.
- Do not touch the battery pack with wet hands.
- Do not crush, drop or puncture the battery.
- Always dispose of the product according to local safety regulations.
- Do not short circuit the terminals.
- Disconnect battery from power/load in case of emergency.
- If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas.

LABEL DESCRIPTION	
<p>Do not operate the battery before thoroughly reading the manual</p>	<p>Keep the system away from open flames.</p>
<p>Do not submerge or allow the system contact with water.</p>	<p>Do not touch any exposed conducting surfaces while the system is operational. Do not touch any conducting surfaces for 5 minutes after the system is turned off.</p>
<p>Do not dispose of the system together with household waste, but in accordance with disposal regulations at the installation site.</p>	<p>Do not try to tip over the system, its weight could cause severe injury.</p>

<p>In case the system leaks corrosive electrolyte, do not touch it. If any corrosive electrolyte comes in contact with the skin or eyes, wash out with cold running water and seek medical help.</p>	<p>CEmark</p>
<p>If the installation requires equipotential bonding make sure to ground the battery appropriately.</p>	<p>Keep out of touch of children and animals.</p>
<p>Do not short circuit the power terminals together.</p>	

2.2 EMERGENCY

Cut off the power supply and turn off the battery in emergency. For example, when there is smoke, fire, burning, etc.

NOVA system switching off process:

1. Turn off AC circuit breaker of Solitek inverter.
2. Switch Solitek inverters DC circuit breaker into off.
3. Push the button beside inverters DC circuit breaker so its light switches off.
4. Push the button on NOVA batteries control box so you can see it bumped out.

After power supply is cut off, please contact local distributor or battery manufacturer to inform about NOVA system issue.

Battery Electrolyte Leakage



If a battery module leaks electrolyte, avoid contact with the leaking liquid or gas. The electrolyte is corrosive and will cause skin irritation or chemical burn to the operator. Anyone contacting the leaked substance accidentally has to seek immediate medical assistance.

Fire



The battery may explode when the ambient temperature exceeds 150°C. Poisonous gas may be released during fire.

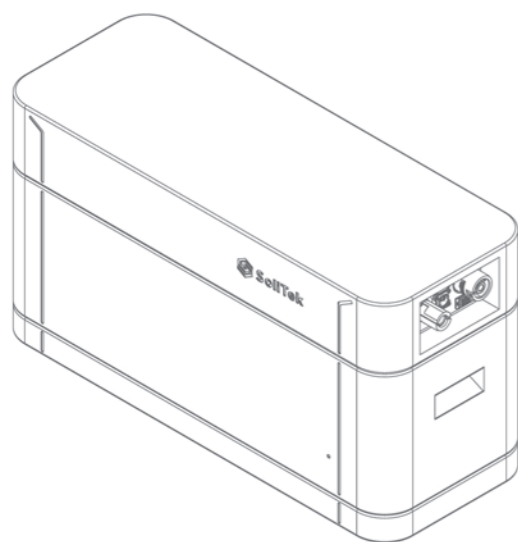
Product Overview

3.1 INTRODUCTION

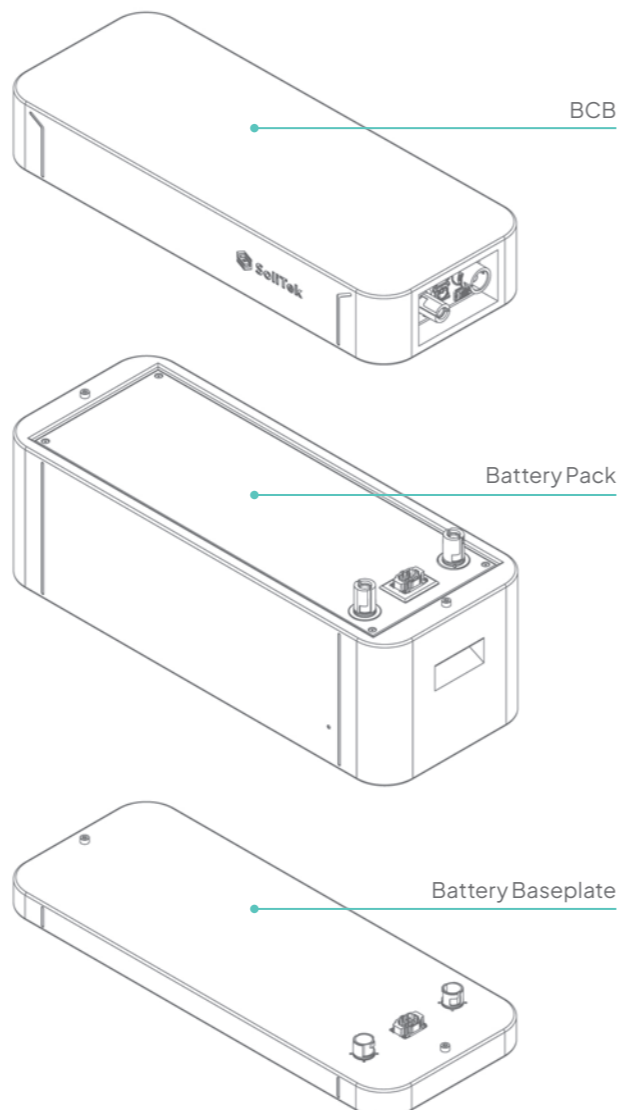
NOVA product is a low-voltage DC battery system with an operating nominal voltage of 51.2V. It is utilized in household energy storage applications and works together with a low-voltage inverter to realize the goal of energy storage for the home.

NOVA battery system consists of 1 to 8 individual battery modules connected in parallel, ending with NOVA baseplate. On top of modules there is the NOVA Battery Control Box.

Product overview

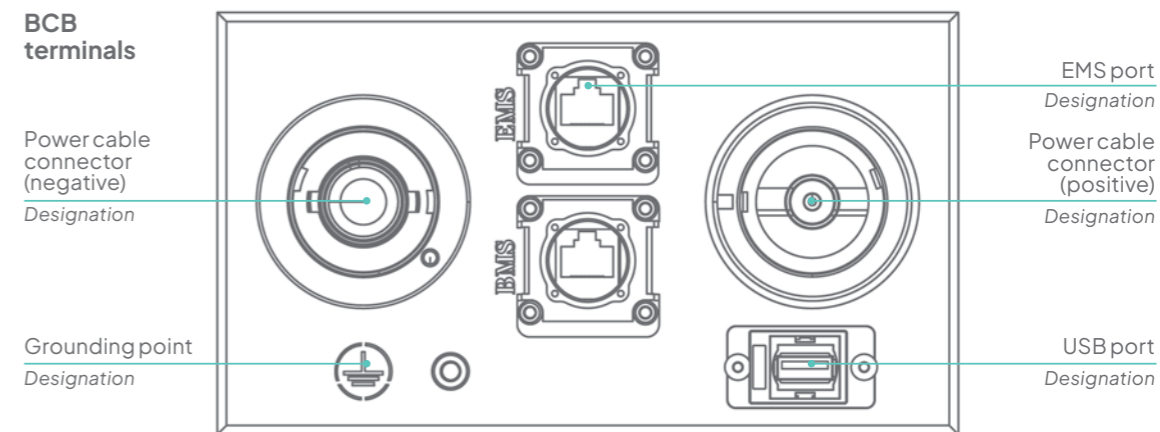


Major Components:

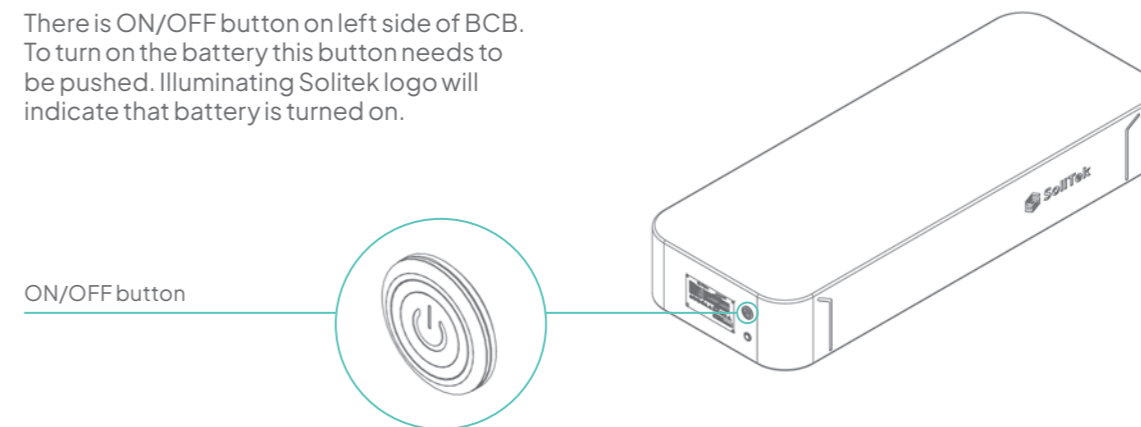


3.2 BATTERY CONTROL BOX

The NOVA Battery Control Box (BCB) is responsible for battery management systems (BMS) and Energy Management system (EMS). This BCB is connected internally to the battery modules below and to the inverter via external CAT5+ data cables.



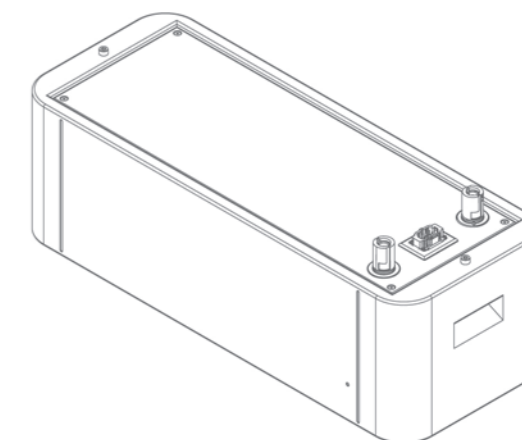
There is ON/OFF button on left side of BCB. To turn on the battery this button needs to be pushed. Illuminating SoliTek logo will indicate that battery is turned on.



3.3 BATTERY MODULE

The battery module provides energy and sends the information about the cell voltage and cell temperature in the battery module to BMS.

SoliTek NOVA battery system is assembled in a stack. All battery modules are identical, so their order in a stack is irrelevant. The connectors between the packs are bolt-less, i.e., they require no additional mechanical connectors or tighteners to secure the battery packs together.



Technical data

Battery Data								
Number of battery packs	1	2	3	4	5	6	7	8
Nominal capacity	5 kWh	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh	35 kWh	40 kWh
Number of control blocks	1							
Cell chemistry	Lithium-Iron-Phosphate (Cobalt-Free)							
Nominal voltage	51.2V							
Operating voltage range	42.4 - 58.4V							
Nominal power	5 kW	10 kW	15 kW					
Peak power (10 seconds)	10 kW	15 kW						
Charging temperature	0 to 50°C							
Discharging temperature	-10 - 50 °C							
Battery system weight	85.9 kg	144.9 kg	203.9 kg	262.9 kg	321.9 kg	380.9 kg	439.9 kg	498.9 kg
Dimensions (LxWxH) (mm)	830x320x447	830x320x709	830x320x971	830x320x1233	830x320x1495	830x320x1757	830x320x2019	830x320x2281
Environmental Requirements								
Ambient temperature	0 - 35 °C							
Altitude	2000 m							
Features								
Interface	SoC (%) display screen; SoliTek app "Solitek view"; SoliTek portal							
Communication	CAN/RS485; WIFI							
Warranty	10 years (See SoliTek NOVA Limited Warranty terms)							
Compatible inverters	SoliTek NOVA inverters							
Certifications	IEC62619, CE, UN38.3							

Battery installation

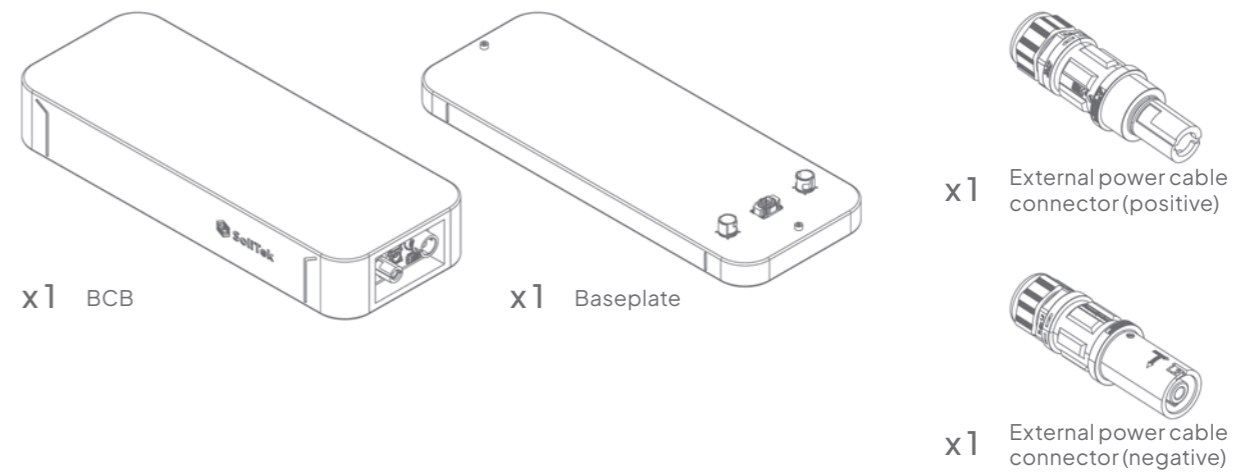
5.1 SOLITEK PACKING LIST

Before installation, check outer packing for damage and model before unpacking it. Then, Check whether the deliverables are intact and complete first after unpacking the battery. If there is anything wrong, contact the after-sales service as soon as possible.

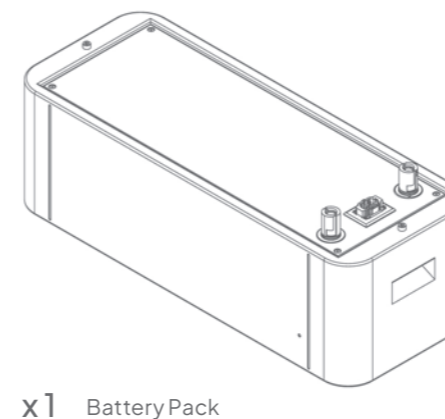
To install a SoliTek NOVA energy system, you will need the following components within packing.

- SoliTek NOVA Control Box and the baseplate;
- 1 to 8 SoliTek NOVA Battery Packs.

Battery Control Box Packing



Battery Pack Packing



5.2 | ADDITIONAL MATERIAL

In addition to material provided within SoliTek packing, it will be needed following material to perform installation:

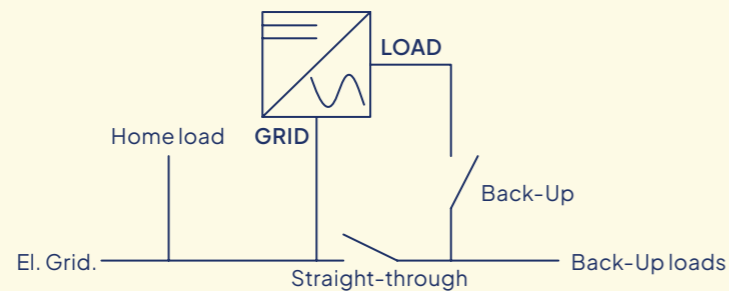
Material	Use
Cu 1 x 6 mm ² wire	Battery grounding
Cu 1 x 95 mm ² wire (black)	Battery power cable (negative)
Cu 1 x 95 mm ² wire (red)	Battery power cable (positive)
CAT5/5e/6 cable	BMS and EMS communication cable
1 x 6 mm ² M5 ring lug	Grounding wire connection to batteries grounding point
4 x 95 mm ² M10 ring lug	Battery power cable connection to inverter
4 x RJ45 plug	BMS and EMS communication cable connection between battery and inverter

Items covered by the table above are not provided by SoliTek and have to be acquired by the installer.



ADDITIONAL EQUIPMENT – “BYPASS FUNCTIONALITY”

To optimize the inverter’s backup feature, prioritize a “bypass” setup during installation. Employ disconnectors or circuit breakers to seamlessly switch between the ‘Back-up’ and ‘Straight-through’ lines. This configuration allows for swift disconnection of the backup power in case of maintenance or malfunctions, enabling a direct connection to the grid for your backup loads. This bypass arrangement streamlines maintenance processes and offers a dependable alternative power source when required.



5.3 | RECOMMENDED TOOLS

The following tools are recommended to install the SoliTek NOVA energy system:

- An RJ45 crimping tool
- A boxcutter knife
- A flat head screwdriver
- A Phillips head screwdriver
- A T15 screwdriver
- A hydraulic crimping plier

Items covered by the points above are not provided with SoliTek Control Box or Battery Packs and have to be acquired by the installer. Additional tools may be required according to installation.

5.4 | BATTERY LOCATION

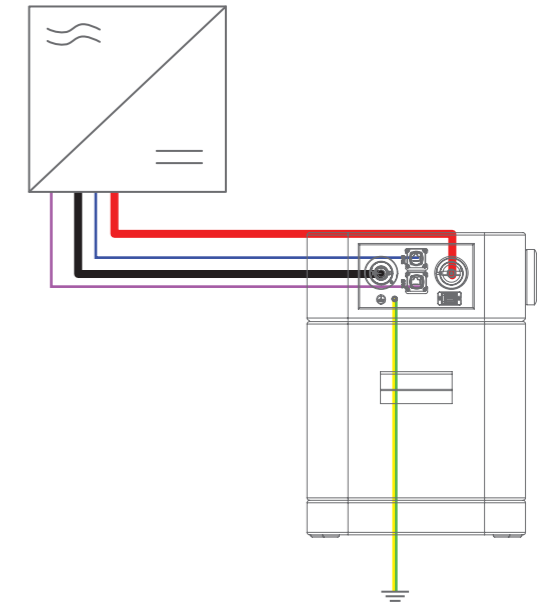
The following requirements for the installation location must be met:

- A solid ground surface, able to uphold up to 400kg per square meter.
- The location must be out of the way for children.
- The location must not be under direct solar irradiation.
- The location must not be closer than 2m to a heat source.
- The location’s altitude must not be higher than 2000m above sea level.
- The location’s ambient temperature must be 0–35°C.
- The location’s ambient humidity must be 10–90%.
- The location must not contain harmful gas, flammable/explosive/corrosive chemicals.

5.5 | SYSTEM INSTALLATION

Overview diagram connection

- Power cable (positive)
- Power cable (negative)
- EMS communication cable (CAT5/5e/6)
- Grounding cable
- BMS communication cable (CAT5/5e/6)



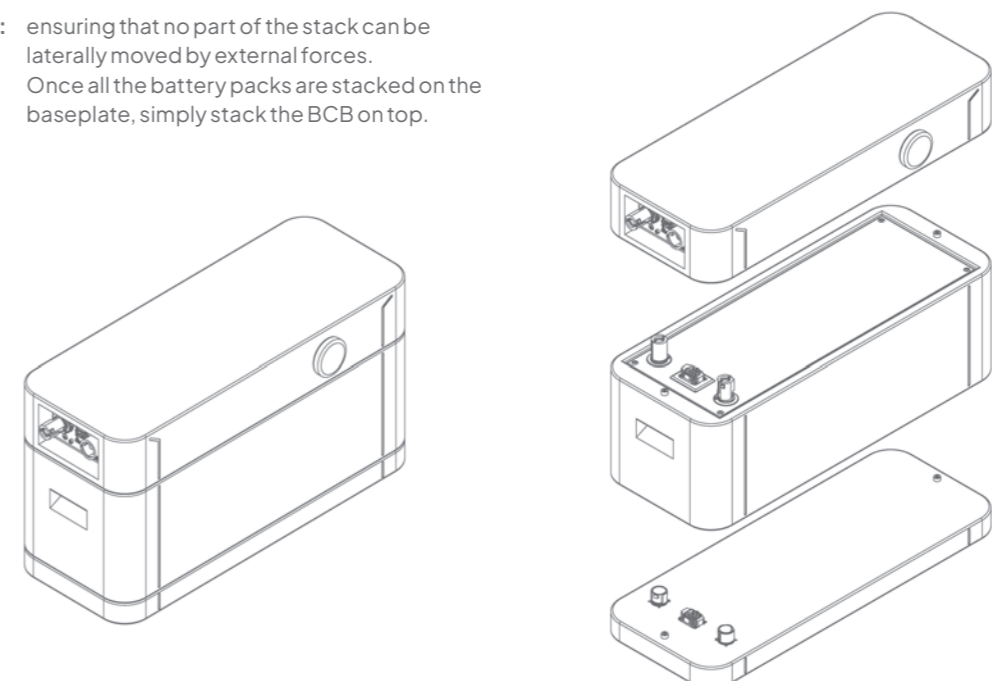
The installation of the SoliTek NOVA battery system consists of the following steps:

1. STACKING

SoliTek NOVA battery system is assembled in a stack. All battery packs are identical, so their order in a stack is irrelevant. The connectors between the packs are bolt-less, i.e. they require no additional mechanical connectors or tighteners to secure the battery packs together.

Stacking process will be done in following steps:

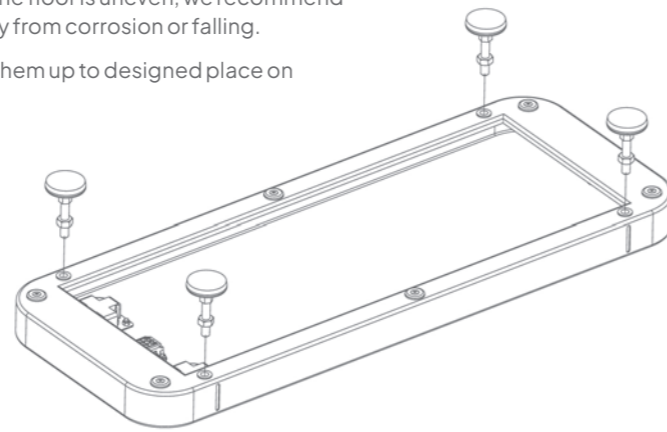
- Step 1:** Lay down the baseplate in the chosen location for installation, so that the connector is facing up.
- Step 2:** Then stack all battery packs, one by one, on top of the baseplate and on each other. Battery pack connectors and dedicated metallic fixation points will guide you in the stacking process. The metallic fixation points also serve the purpose of grounding system casing. On the connector side, you will have to push down so that proper contact is ensured. If the battery packs are properly stacked, the gap in between them should be uniform. Each battery pack will have two fixation holes on the back that can be used to fix the battery pack to the wall. They should be used to fix the stack to the wall.
- Step 3:** ensuring that no part of the stack can be laterally moved by external forces. Once all the battery packs are stacked on the baseplate, simply stack the BCB on top.



Step 4: (optional) If there is moisture on the floor or the floor is uneven, we recommend using lifting legs to prevent battery from corrosion or falling.

To install lifting legs simply screw them up to designed place on baseplate (refer to image below).

Lifting legs have to be acquired by installer. Lifting legs thread size is M10. Select length according to installation.



2. GROUNDING THE BATTERY BOX

To ground a SoliTek NOVA battery system, you must prepare the grounding cable. It is recommended to use at least 6mm² - 12 AWG cross-section copper cables.

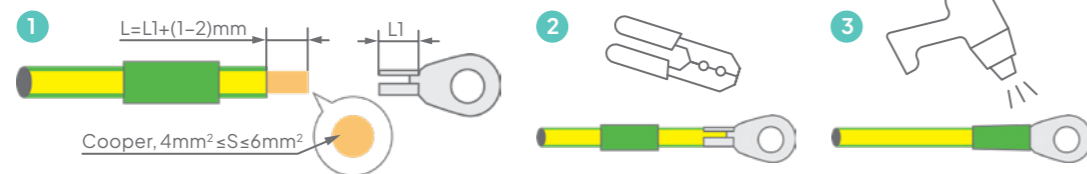
Step 1: Fix one end of the cable to the grounding circuit.

Step 2: On the other end, install an M5 ring lug.

Step 3: Once the cable is ready, screw it to batteries grounding point.

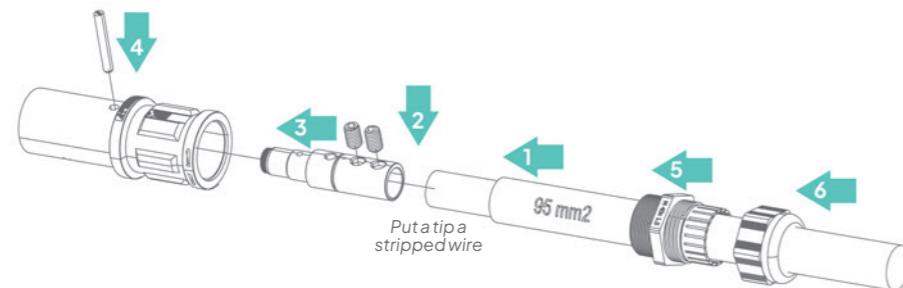
The cable should be connected to the grounding circuit before being connected to the grounding terminal on the NOVA Control Box.

Grounding cable preparation.



3. CONNECTING DC POWER CABLES

Prepare DC power cable using external power cable connectors which are provided together with BCB. To prepare DC power cables refer to image below.

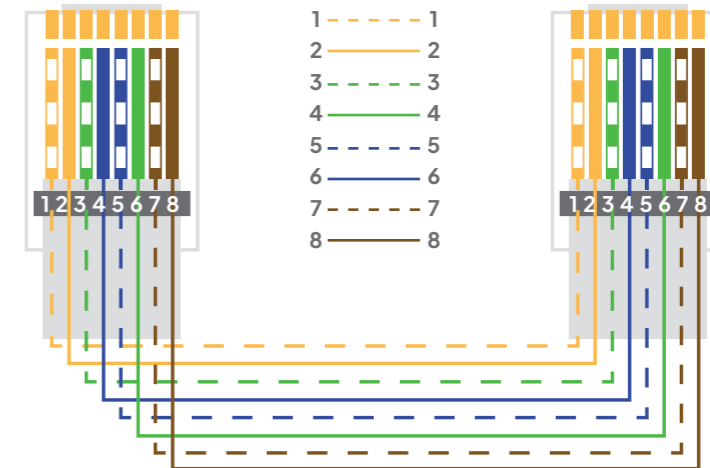


After power cables are ready connect them to BCB power cable connectors.

4. CONNECTING CAT5+ DATA CABLES - EMS AND BMS

To connect the CAT5+ data cable, you will have to prepare them first or buy to new one. This is a standard straight through internet cable. Get CAT5+ cable, with enough length to reach from the battery box to the inverter. Prepare RJ45 plugs on both ends of the cables.

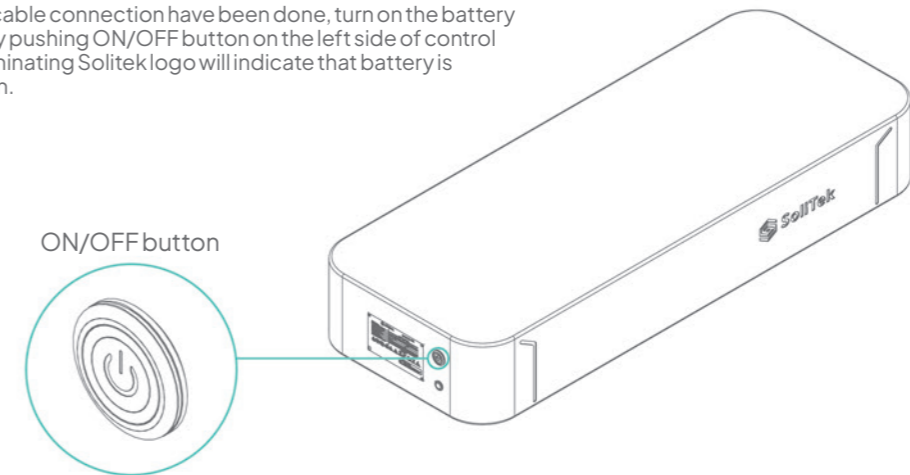
The EMS and BMS port supports straight-through pinout.



Connect EMS cable to batteries EMS terminal.
Connect this BMS cable to batteries BMS terminal.

5. TURN ON THE BATTERY

After all cable connection have been done, turn on the battery simply by pushing ON/OFF button on the left side of control box. Illuminating SoliTek logo will indicate that battery is turned on.



Energy Management System (EMS)

6.1 DESCRIPTION

Nova battery is a unique residential battery with a built-in Energy Management System (EMS) powered by Artificial Intelligence.

The target of the EMS is controlling de battery energy flow to optimize it (reduce electricity billing keeping safety back-up). In order to do it, SoliTek NOVA battery is gathering continuously solar power generation, electricity consumption meteorological information of the house. Historical data is stored and processed with Artificial Intelligence in Solitek cloud (Europe), learning household consumption habits and predicting power generation via meteo.

Artificial Intelligence EMS is updating every 4 hours the best charging/discharging strategy of NOVA's energy for the householder.

EMS monitoring and control is done via SoliTek View. Thus, it's needed to correctly configure NOVA EMS according to next chapter.

6.2 CONFIGURATION

Before starting operation with SoliTek View app, it's needed to set up correctly the Battery Control Box and register our new NOVA battery system in SoliTek webservice.

1. BATTERY CONTROL BOX SETUP

Step 1: Switch on the battery

After NOVA battery system is correctly installed, push the ON/OFF button. Illuminating Solitek logo will indicate that battery is turned on.

Step 2: Wifi network configuration

Take a device that can connect to WiFi, and connect to the Inion network. The password for the network is scadacmms.

Once connected, open web browser and enter 192.168.4.1 into search, then you will be prompted with a network selection. Took a screenshot of web interface, there will be loggerid which will be relevant during webservice setup. Select the WiFi network that you want the battery to connect to, and type in its password, if applicable. Afterwards, click 'save'.

This should terminate your connection to the 'Inion' network and conclude the WiFi setup.

solarone configuration window

Device: XXXXXXXXXXXX

WiFi SSID: SOLITEKNOVA

WiFi password: WiFipassword

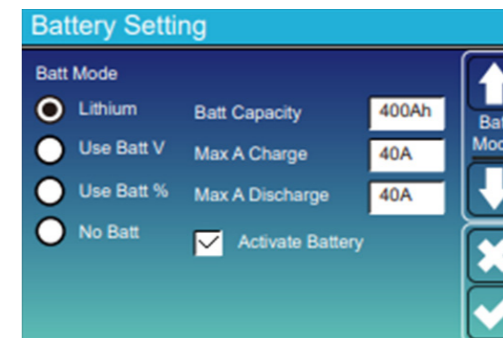
Device name: Not required

Advanced ▾

Save

Step 3: Check inverter settings

Check inverter Battery Setting. Choose Batt Mode: Lithium, check Activate Battery and adjust Batt Capacity, Max A Charge, Max A Discharge according to installed battery pack amount.



Amount of battery packs	Batt Capacity (Ah)	Max A Charge (A)	Max A Discharge (A)
1	100	100	100
2	200	200	200
3	300	300*	300*
4	400	300*	300*
5	500	300*	300*
6	600	300*	300*
7	700	300*	300*
8	800	300*	300*

*If the inverter does not allow to set 300 A, set the maximum allowed value according to inverter.

Once this is done inverter will recognize the connected battery.

2. CHECK INVERTER SETTINGS

Once NOVA battery system is ready, user have to register it in SoliTek webservice.

SoliTek NOVA can be controlled through what is called Solitek View - a web service that lets you look at the data of both your solar plant and your NOVA battery system in real time, and make specific adjustments to the control of your energy system.

The webservice can be accessed either through the SoliTek View mobile app (found in both the Google Play Store and the Apple App Store), or simply through the solitekview.eu website.

After the installation, your SoliTek NOVA energy system is ready to be connected to your personal account. To do this, you must create an account on the SoliTek View platform. You will be guided through this procedure on the platform.

After creating an account, log into it. Once you are in the platform, add your energy system to your account. To do so, click the plug/socket icon on the bottom left of the screen.



Add device icon

solarone configuration window

Device: XXXXXXXXXXXX

WiFi SSID: SOLITEKNOVA

WiFi password: WiFipassword

Device name: Not required

Advanced ▾

Save

After clicking it, you will be met with a code entry window. Type in the loggerid from screenshot which has been made in previous steps.

The device code location.

Once the code is entered, you will be prompted to enter additional info:

Part 1: SoliTek view asset configuration

Select the 'Inverter' device, 'SoliTek' manufacturer and the respective inverter that you have from the drop-down list. Then, enter the communication ID (if this is your first device, and no specific instructions were left to you by the installer, you can leave the default value, which is '1').


Part 2: SoliTek View asset configuration

After you add this device, the next window asks if you want to add more devices, and to check the RS-485 communication data. If this is a regular installation of a single SoliTek NOVA system, no changes need to be made. If your installation is more customized, you will be notified of these settings by the installer.

Simply click 'Next', then on the pop-up confirmation, click 'Confirm'.

Part 3: SoliTek View asset configuration

In the following screen, select the location of the installation, and give your plant a name.

 We suggest naming the plant by your full name.

Part 4: SoliTek View plant configuration

After clicking next, you will be met with a connection test. Wait for it to confirm that your system has connected, and then click 'Finish'.

That concludes the SoliTek View setup, and you will be able to see your plant and all the data from that point onward. It should take up to 5 minutes for the data graph to be drawn, but you will be able to see real-time data immediately.

Operation & Warranty

7.1 | OPERATION

SoliTek NOVA can be controlled through what is called "Solitek View", a web service that lets you look at the data of both your solar plant and your NOVA battery system in real time and make specific adjustments to the control of your residential energy system.

The webservice can be accessed either through the SoliTek View mobile app (found in both the Google Play Store and the Apple App Store), or simply through the solitekview.eu website.



Google Play

<https://play.google.com/store/apps/details?id=com.inionsoftware.solitekview>



Apple App Store

<https://apps.apple.com/th/app/solitek-view/id6446478480>



The website

<https://solitekview.eu>

There is a specific user manual for Solitek View app, that is accessible for all users via SoliTek website:



SoliTek View app manual

<https://www.solitek.eu/en/downloads>

7.2 | WARRANTY

SoliTek provides warranty when the product is installed and used according to the instructions contain in the Manuals and Warranty Letter.

Please download the Warranty Letter via the following website:



SoliTek NOVA Limited warranty terms

<https://www.solitek.eu/en/downloads>

Maintenance & Switching Off

8.1 | MAINTENANCE

SoliTek NOVA energy system is a next-to-no maintenance system. User also can monitor the running status of battery, warning, and alarm information from SoliTek View app.

It is recommended to do a visual inspection every 6 months to check state of charge, wall mounting, outer shell, cables, dust or debris, liquid, etc.

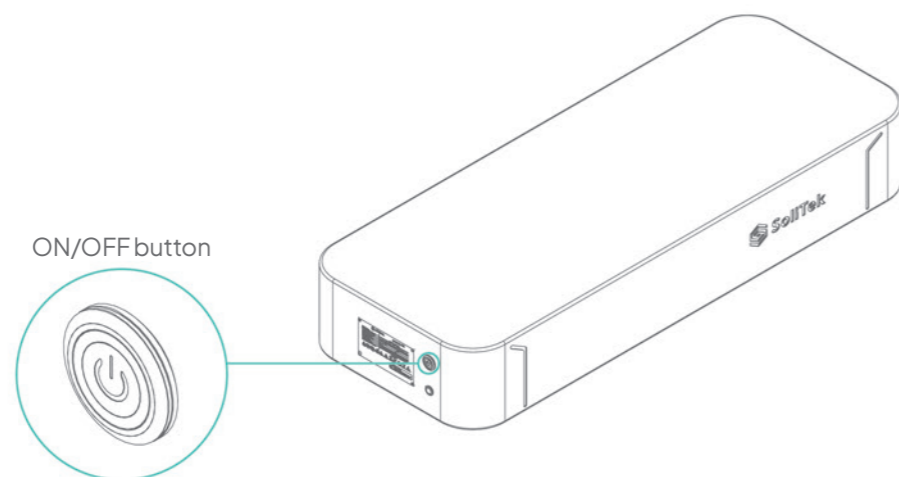


WARNING

Please contact after-sales for help if you find any problems that may influence the battery or the inverter. Disassemble without permission is strictly forbidden.

8.2 | SWITCHING OFF THE BATTERY

To switch off the battery at first check inverter battery settings. Unmark Activate Battery, and press check mark at bottom right corner (it will stop energy flow between battery and inverter). After, turn off the battery by pressing ON/OFF button on the left side of the BCB (it should be bumped out).



Decommissioning & Disposal

9.1 | DECOMMISSIONING



Battery uninstallation must be performed only by an authorized electrician.

9.2 | DISPOSAL



Do not dispose of the system together with household waste, but in accordance with disposal regulations at the installation site.



Never transport damaged batteries and their components.



Do not dispose of batteries and their components in fire.

WE HAD A SPARE PAGE LEFT
SO HERE'S SOME WORD SEARCH

S U S T A I N A B L E Q
J M G B A C K U P F Z H
L I T H U A N I A N P O
W A T T D S M A R T O M
H S U **N O V A** O J L W E
R E N E W A B L E Q E E
G P B A T T E R Y E R V
E U R O P E A N V G Q J

Find the following words in the puzzle.

Words are hidden → and ↓.

BACKUP

BATTERY

EUROPEAN

HOME

LITHUANIAN

~~NOVA~~

POWER

RENEWABLE

SMART

SUN

SUSTAINABLE

WATT



—

**Energy
for all your
needs**