

RETROFIT MANUAL

VARTA element backup



Legal notice

Original retrofit manual VARTA element backup

VARTA Storage GmbH
Nürnberger Straße 65
86720 Nördlingen
Germany

www.varta-storage.de
Phone: +49 9081 240 866 060
info@varta-storage.com

Technical service:

If you require assistance in troubleshooting or installing your device, we will be glad to help you. Please contact your local technical support. You will find the contact details at www.varta-ag.com.

DE - Technical service:
technical.service@varta-storage.com
Phone: +49 9081 24086 6044

Document number: 803331-04
As of: 6/2022

Contents

General	5
1 Information about this manual.....	5
1.1 Symbol explanation.....	5
1.2 Safety instructions.....	5
1.3 Warning stages.....	5
1.4 General safety signs.....	6
1.5 Warning sign.....	6
2 Safety.....	7
2.1 General information on safety.....	7
2.2 Intended use.....	7
2.3 Erroneous use.....	8
2.4 Prohibited use.....	8
2.5 Requirements for electrical specialists.....	8
2.6 General danger sources.....	9
2.7 Danger due to electrical voltage.....	9
2.8 Danger due to water.....	10
2.9 Danger due to oxidising and corrosive substances.....	10
2.10 Danger due to heat.....	10
2.11 Danger due to misconduct.....	11
3 Safety equipment.....	11
4 Scope of delivery.....	12
4.1 Material number: 802321.....	12
4.2 Material number: 802322.....	12
5 Guarantee.....	12
Installation	13
6 Transport and storage.....	13
6.1 Transport.....	13
6.2 Transport regulations and safety directions.....	13
6.3 Packaging/transport control.....	14
6.4 Storage.....	15
7 Assembly and installation.....	16
7.1 Retrofit preparation.....	16
7.2 Assembly preparation.....	16
8 Battery module assembly.....	17
8.1 Switching off the energy store.....	17
8.2 Opening the storage cabinet.....	17
8.3 Switching off the integrated battery module.....	18
8.4 Check the battery modules.....	18
8.5 Behaviour in the event of damage.....	18
8.6 Fit and connect battery modules.....	19
8.7 Position of the battery modules.....	20
8.8 Connections on the battery module.....	21
8.9 Connections on the battery charger (front).....	21
9 Retrofitting of VARTA element backup.....	22
9.1 Initial situation of VARTA element backup 1 battery charger.....	22
9.2 Retrofitting of VARTA element backup 2. battery charger.....	23
9.3 Retrofitting of VARTA element backup 3. battery charger.....	25
9.4 Closing the storage cabinet.....	26
10 Retrofitting of VARTA element backup.....	27
10.1 Initial situation of VARTA element backup 2 battery charger.....	27
10.2 Retrofitting of VARTA element backup 3. battery charger.....	28
10.3 Closing the storage cabinet.....	29
11 Commissioning.....	30
11.1 Software update.....	30
11.2 Further commissioning.....	30
12 Appendix.....	30
13 Declaration of conformity.....	30

About this manual

Read this manual carefully to ensure flawless functioning of the VARTA element backup energy storage system. Retrofit must be done by a qualified electrician certified by VARTA Storage GmbH .

Preserving the manual

The retrofit manual should be kept near the VARTA element backup and must always be accessible to all persons involved in works on the energy storage system. In the event of a change of operator, the retrofit manual is also to be handed over.

Target group

This manual is directed at:

- Electrical specialists responsible for installation, commissioning and maintenance.

Other applicable documents

The operating manual of the VARTA element backup.


Scope of application

The retrofit kit is to be used exclusively to retrofitting the VARTA element backup.

General equal treatment

VARTA Storage GmbH is conscious of the significance of language in relation to the equal treatment of men and women. For ease of legibility, no gender-specific differentiation is deployed. In the interests of equal treatment, corresponding terms apply to both sexes.

Notice for special attention

	ATTENTION
	Energy store switched off Possible damage to the batter module due to deep discharge. ➔ The energy storage system may be switched off only temporarily for maintenance purposes.

Limitation of liability

VARTA Storage GmbH assumes no liability for personal damage, material damage, damage to the product and consequential damage to the product due to failure to observe this manual and the operating manual of the energy store, in the event of improper use of the product, repairs, opening of the storage cabinet and any other actions of unqualified electricians or electricians not certified by VARTA Storage GmbH. This limitation of liability also applies to the use of unauthorized spare parts and non-compliance with the specified maintenance intervals.

The safety instructions specified in the retrofit and operating manual for the energy store VARTA element backup apply.

Performing reconstructions or technical alterations to the product on one's own authority is prohibited.


© VARTA Storage GmbH 2022

General

1 Information about this manual

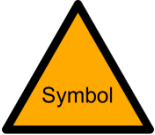


1.1 Symbol explanation

The following types of safety directions and tips are used in this retrofit manual:

 Indicates tips regarding use of the device.





1.2 Safety instructions

In this manual, the safety directions are structured as follows:





	 Signal word
	Type and source of danger! Possible consequence(s) in the event of non-compliance.  Measure and prohibitions to avoid the danger.

1.3 Warning stages

Signal word and warning colour identify the warning stage and provide an immediate indication of the type and severity of consequences if the measures to avoid the danger are not followed.

Warning colour / signal word	Consequences
	warns of a directly dangerous situation that can lead to death or to serious injuries and/or fire.
	warns of a possibly dangerous situation that can lead to death or to serious injuries and/or fire.
	warns of a possibly dangerous situation that can lead to light injuries and/or material damage.
	warns of a possible situation that can lead to material and environmental damage and disrupt operations.

1.4 General safety signs

Symbol	Meaning
	Prohibition signs are round, with a black pictogram, on a white background and a red border and crossbar.
	Prohibition signs are round, with a white symbol, on a blue background.
	Warning signs are triangular, with a black symbol and border, on a yellow background.
	Environmental regulations are indications of state regulations to be complied with, particularly in relation to disposal.

1.5 Warning sign



General warning sign



Warning of hand injuries



Warning of electric shock



Warning of cut injuries



Warning of oxidising substances



Warning of dangers due to batteries





warning of non-compliance with the discharge time. Comply with a waiting time of at least 3 minutes.

2 Safety

2.1 General information on safety

Each person mandated with works on the system must have read and understood this manual and especially the Safety chapter. In addition to the legal provisions, all safety instructions of the VARTA element backup operating manual apply.

	 WARNING
	<p>Non-compliance with the safety instructions!</p> <p>Improper use can lead to fatal injuries.</p> <p>➔ Before use, ensure that all the protective equipment works.</p>

Compliance with the safety directions and the occupational safety measures in which training is provided limits the risk.



Read the operating manual.

This manual cannot describe every conceivable situation; therefore, the applicable standards as well as the corresponding regulations for occupational health and safety always have priority. Additionally, use of the energy storage system is associated with residual dangers under the following circumstances:



- The installation and maintenance works are not carried out properly.
- The installation and maintenance works are carried out by untrained and non-instructed personnel.
- The safety directions provided in this manual are not followed.

All safety directions must be followed without fail; compliance with them is for your safety. No modifications may be made to the device.

2.2 Intended use

The VARTA element backup with its components is built according to the state of the art and the product-specific standards and is to be used for the storage of electricity from photovoltaic systems. Other uses must be coordinated with the manufacturer and the local energy supplier.




2.3 Erroneous use

	 WARNING
	<p>Possible danger to life due to erroneous use!</p> <p>Possible danger to life.</p> <p>➔ In the interior of the device there are parts with dangerous voltages. Contact with these can lead to death.</p> <p>➔ Any use that goes beyond the intended use or other use of the energy storage system or individual parts can lead to life-threatening situations.</p>

2.4 Prohibited use

Retrofit
<ul style="list-style-type: none">• The use of battery modules that are not part of the retrofit sets supplied by VARTA Storage GmbH.

2.5 Requirements for electrical specialists

 	 WARNING
	<p>Insufficient qualification of the electrical specialist.</p> <p>Personal and material damage.</p> <p>➔ Activities on the VARTA element backup system (e.g. installation and maintenance work) may be performed by qualified electrical specialists certified by VARTA Storage only.</p>

Here, "specialists" refers to persons who, among other things, possess the knowledge of relevant terms and skills.



They are able to evaluate the following works and recognise possible dangers due to their technical training, knowledge and experience as well as knowledge of the relevant provisions:



- Assembly of electrical equipment.
- Assembly and connection of data lines.
- Assembly and connection of power supply lines.

2.6 General danger sources



If the following directions on handling the device are not complied with, this can lead to personal damage and material damage to the device for which VARTA Storage assumes no liability.

2.7 Danger due to electrical voltage



	 DANGER
	<p>Contact with electrical voltage.</p> <p>Danger to life due to electric shock.</p> <ul style="list-style-type: none">➔ Always keep the energy store closed.➔ Look out for damage to the electrical equipment.➔ Have defects eliminated immediately.➔ Only the electrical specialist is allowed to open the energy store.➔ The energy store may be opened only while switched off.➔ Comply with a waiting time of at least 3 minutes.

	 DANGER
	<p>Contact with electrical voltage.</p> <p>Danger to life due to electric shock on the replacement power connection.</p> <ul style="list-style-type: none">➔ Only the electrical specialist is allowed to open the energy store.➔ Switch off the energy store.➔ Ensure that the supply line of the system is disconnected from the mains.➔ Comply with a waiting time of at least 3 minutes.


2.8 Danger due to water


	 WARNING
	<p>Entry of water into electrical installations.</p> <p>Possible danger to life and material damage.</p> <ul style="list-style-type: none">➔ Do not use water to clean the energy store.➔ Do not deposit containers with liquids (such as drink cups, etc.) on electrical installations.➔ The relative humidity in the room must not exceed 80%.

2.9 Danger due to oxidising and corrosive substances


	 WARNING
	<p>Storage and use of oxidising and/or corrosive substances.</p> <p>Increases the fire risk and the risk of electric shocks.</p> <ul style="list-style-type: none">➔ Store the above-named substances only in the places intended for them.➔ Do not clean the system with agents containing acid, lye or solvents.


2.10 Danger due to heat


	ATTENTION
	<p>Insufficient ventilation of the system!</p> <p>Overheating of the system possible.</p> <ul style="list-style-type: none">➔ Keep vents clear.➔ Ensure sufficient ventilation.

	ATTENTION
	<p>Heat entry due to direct solar radiation or devices that emit heat!</p> <p>Overheating of and damage to the system possible.</p> <ul style="list-style-type: none">➔ Protect system from direct solar radiation.➔ Do not use a fan heater or a similar device near the system.



2.11 Danger due to misconduct

	ATTENTION
	<p>Energy store switched off!</p> <p>Possible damage to the batter module due to deep discharge.</p> <p>➔ The energy storage system may be switched off only <u>temporarily</u> for maintenance purposes.</p>

	ATTENTION
	<p>Objects on the system!</p> <p>Risk of injury due to falling objects and the system can be damaged.</p> <p>➔ Do not deposit objects on the energy store.</p>

	ATTENTION
	<p>Access blocked!</p> <p>System cannot be switched off in the event of damage.</p> <p>➔ Access to the energy store must be ensured at all times.</p>

3 Safety equipment

 	WARNING
	<p>Defective safety equipment!</p> <p>Possible danger to life.</p> <p>➔ Safety equipment must not be damaged, modified, removed or decommissioned.</p> <p>➔ The flawless functioning of the safety equipment must be checked following the end of the installation and commissioning by qualified electrical specialists certified by VARTA Storage.</p>

The VARTA element backup energy storage system has several pieces of safety equipment. These include grid and system protection according to VDE-AR-N 4105, closed electrical operating area, overtemperature switch-off and a door switch. The latter switches the energy store off if an attempt is made to open the storage cabinet without previously disconnecting it from the mains.

- Switching off does not disconnect the replacement power connection of a VARTA element backup from the mains.



A smoke detector must be installed in the setup room of the VARTA element backup.

4 Scope of delivery

4.1 Material number: 802321

Upgrade VARTA element backup to the medium expansion stage.

- 1 x battery charger,
- 1 x communication cable set,
- 1 x power cable,
- 4 x round-head screws M6 x 12.

4.2 Material number: 802322

Upgrade VARTA element backup to the medium expansion stage.

- 1 x battery charger,
- 1 x communication cable set,
- 1 x power cable,
- 1 x battery charger connection cable,
- 4 x round-head screws M6 x 12.

Note:

Depending on the planned expansion stage, up to two different retrofit kits must be used.

5 Guarantee

The warranty registration is described in the operating manual of the VARTA element backup.

Installation

6 Transport and storage



6.1 Transport

Lithium-ion batteries are dangerous goods. The battery modules are designed and tested in such a way that they may be transported up to a total weight of 333 kg under compliance with the conditions of ADR 1.1.3.6 (not transport requiring labelling provided there are no other dangerous goods on or in the vehicle). The other requirements of GGVSEB and ADR must also be complied with. Delivery takes place in tested dangerous goods packaging.

The lithium-ion batteries were successfully subjected to the UN 38.3 Transport test (UN Manual of Tests and Criteria, Part III, subsection 38.3) and passed it.

If a battery module is being replaced, it may be appropriate to request new dangerous goods packaging, pack the battery module and have it collected by the supplier. The other requirements of GGVSEB and ADR must also be complied with. Delivery takes place in tested dangerous goods packaging.

6.2 Transport regulations and safety directions

 	WARNING
	Improper transport due to lack of specialist knowledge. Possible danger to life and material damage. → The energy store and its components may be transported only by the manufacturer and electrical specialists qualified and certified by the manufacturer. → Operate carefully during transport. → Adhere to the transport regulations.



The housing and the battery module

- must not be stored temporarily in the transport vehicle.
- the energy store must not be transported if a battery module is already integrated.
- the outer packaging of a battery module must not be opened by the vehicle driver or co-driver.

The housing and the battery module

- a tested ABC fire extinguisher with a minimum volume capacity of 2 kg is to be carried.
- pay attention to the symbols on the packaging.
- Transport the parts in closed vehicles only.
- the load is to be properly secured.
- transport the battery module in its intended transport packaging only.
- comply with the requirements pursuant to GGVSEB and ADR!

Use your personal protective equipment.



This reduces the risk of injuries during the mechanical works.



WARNING

Components are heavy.

This can lead to overburdened intervertebral discs, contusions and strains.

➔ Carry out the works described in this chapter with 2 persons or suitable aids.

i

If a battery module is being replaced, it may be appropriate to request new dangerous goods packaging, pack the battery module and have it collected by the supplier.

6.3 Packaging/transport control



DANGER

Installation of damaged components.

Danger to life.


- ➔ Do not accept clearly damaged packaging.
- ➔ Contact VARTA Storage.

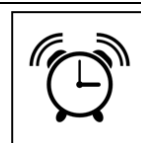
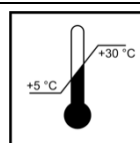
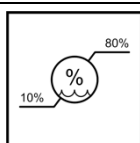
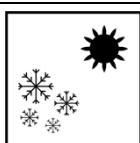
The storage cabinet and the battery module (individually packed) are delivered in separate and tested packaging units on pallets. The installer assumes the disposal of the packaging. Please check the deliveries for completeness and damage:

- Should damage be recognisable on the packaging, please note this on the delivery documents and have this confirmed by the driver by means of a signature.
- Reject deliveries in heavily damaged packaging.

- i Remove the packaging only immediately before setup. You will thus avoid damage. It may be appropriate to keep the packaging material so that the system can be properly packaged again in the event of later transport (location change).

6.4 Storage

	WARNING
	<p>Entry of water into electrical installations.</p> <p>Short circuit and corrosion due to condensation water.</p> <p>➔ Adhere to the storage conditions.</p>




The housing and the battery module

- Do not store temporarily in the transport vehicle.
- Do not store outdoors.
- No abrupt temperature changes.

The housing and the battery module





- Store dry at a humidity < 80%.
- Store at a temperature of +5 °C to +30 °C (optimal: +18 °C).

	ATTENTION
	<p>Material damage due to superimposition.</p> <p>Deep discharge of the battery module.</p> <p>➔ Adhere to the storage conditions.</p>

The battery module

- Have it commissioned within 20 weeks of delivery by the manufacturer or by an electrical specialist.

7 Assembly and installation

	 WARNING
	<p>Entry of water into electrical installations.</p> <p>Short circuit and corrosion due to condensation water.</p> <p>➔ Begin with the assembly only when the components have reached room temperature.</p>
	 WARNING
	<p>Installation of damaged components!</p> <p>Possible danger to life.</p> <p>➔ Check all components for visible damage.</p> <p>➔ Do not install damaged components.</p> <p>➔ Contact VARTA Storage.</p>

7.1 Retrofit preparation

Use your personal protective equipment.



This reduces the risk of injuries during the mechanical works.

Adhere to the safety rules!



- Disconnect from the mains.
- Secure against switching on again.
- Ensure de-energised state.



Increased caution at the replacement power connection.


- Before connecting to energy, ensure that there are no persons in the danger zone.


7.2 Assembly preparation

Make sure that the subsurface has sufficient load-bearing capacity.
For the weight of the energy store, see: Operating manual of the energy store.

- If appropriate, have the statics checked.

8 Battery module assembly

	! DANGER
	<p>Touching live parts!</p> <p>Danger to life.</p> <ul style="list-style-type: none"> ➔ Comply with a waiting time of at least 3 minutes. ➔ Ensure that the battery modules are switched off and that no LED display is lit up. ➔ The energy store must not be transported if a battery module is already integrated. ➔ Keep unauthorised persons away.

	! WARNING
	<p>Touching sharp-edged parts!</p> <p>Cut injuries.</p> <ul style="list-style-type: none"> ➔ Wear your personal protective equipment

8.1 Switching off the energy store

The VARTA element backup is shut down using the on/off switch (3). Here, it should be taken into account, however, that the replacement power connection is also supplied with voltage from the mains when switched off. Thus, consumers connected to the replacement power connection are also supplied when the store is switched off. If the replacement power connection is to be disconnected, the store must be switched off using the on/off switch (3) and the network connection of the store switched off. (Racking out the store connection). These two steps must be performed for work on the replacement power connection as well as for work on the storage system.

1. Actuate the on/off switch (3),
2. Rack out fuse F1 (compare connection diagram).

8.2 Opening the storage cabinet

To open the door, remove the three screws (4) on the left side of the cabinet.

Tool: Torx 25 screwdriver.





No.	Description
1	Cover
2	Type plate
3	On/off switch
4	Screws for opening the door
5	Black start button
6	Ventilation grid

8.3 Switching off the integrated battery module



If LEDs on the integrated battery module light up, switch off the module.

- To do this, briefly press the activation button.






8.4 Check the battery modules

	 WARNING
	<p>Damaged battery module</p> <p>Personal and material damage.</p> <ul style="list-style-type: none"> ➔ Unpack the battery module carefully. ➔ Check the battery module for damage and cleanness. ➔ Under no circumstances integrate and commission a damaged or soiled battery module! ➔ Transport the battery module carefully. ➔ Do not deposit parts on the battery module. ➔ Keep unauthorised persons away!
<p>Cleaning agents</p>	
<p>Do not use cleaning agents containing acid, lye or solvents!</p>	

8.5 Behaviour in the event of damage

	 WARNING
	<p>Improper handling of damaged battery module</p> <p>Personal and material damage</p> <ul style="list-style-type: none"> ➔ Do not open the battery module. ➔ Do not attempt a repair. ➔ Avoid contact with any escaping liquid. ➔ Avoid contact with any escaping vapours.
<p>Damaged or soiled battery module</p>	
<p>Contact VARTA Storage.</p>	
<p>First aid in the event of contact with escaping liquid</p>	
<p>If inhaled:</p> <ul style="list-style-type: none"> • Leave the room. • Request or seek medical assistance immediately. 	
<p>In the event of skin contact:</p> <ul style="list-style-type: none"> • Wash the affected area thoroughly with water and soap. • Request or seek medical assistance immediately. 	
<p>In the event of eye contact:</p> <ul style="list-style-type: none"> • Rinse eyes with flowing water for at least 15 minutes. • Request or seek medical assistance immediately. 	

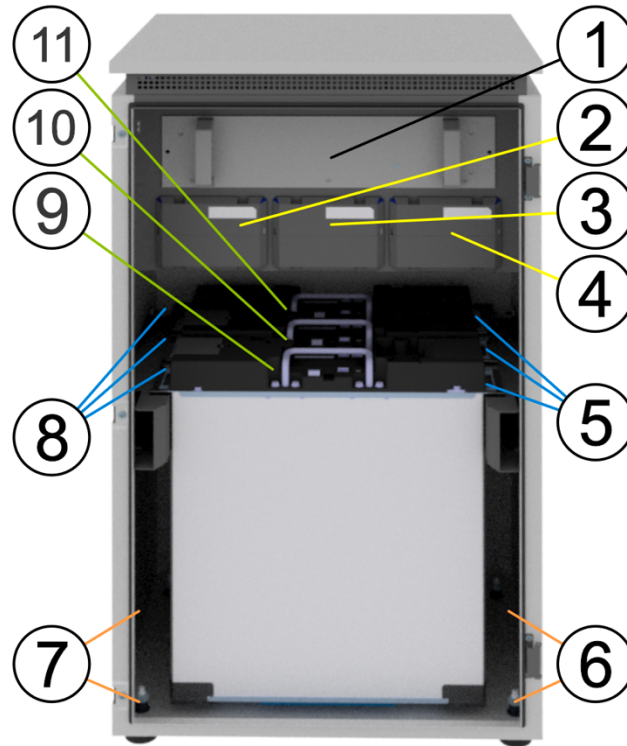
8.6 Fit and connect battery modules

 	<p>WARNING</p> <p>Improper handling of battery module.</p> <p>Personal and material damage.</p> <ul style="list-style-type: none">➔ Carry out the works described in this chapter with 2 persons or suitable aids.➔ Do not lift the battery module using the handle.➔ Hold the battery module by the handle when fitting it.
	<p>ATTENTION</p> <p>Two battery modules on one battery charger.</p> <p>Material damage due to excessively large current flow.</p> <ul style="list-style-type: none">➔ Always connect only one battery module to a battery charger
	<p>ATTENTION</p> <p>Superimposition of battery module.</p> <p>Deep discharge of the battery module.</p> <ul style="list-style-type: none">➔ As soon as you have begun the commissioning, it must be carried out to the end.
	<p>ATTENTION</p> <p>Inverted wires of error and warning messages.</p> <p>Wrong error message to the control.</p> <ul style="list-style-type: none">➔ Pay attention to the specified colour coding.

8.7 Position of the battery modules

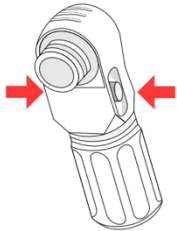
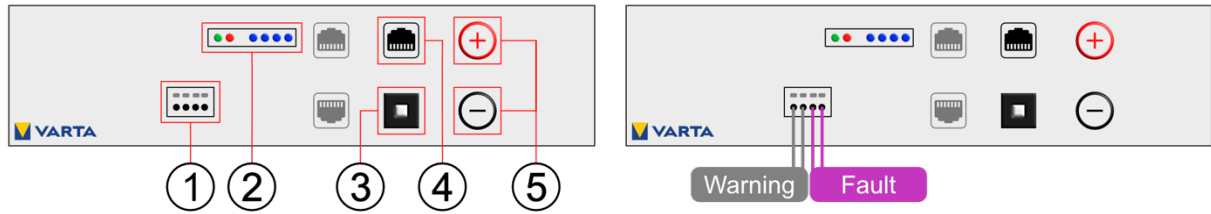
Depending on the model, up to three battery modules are integrated.

- The first battery module (11) is mounted on the back wall of the energy store.



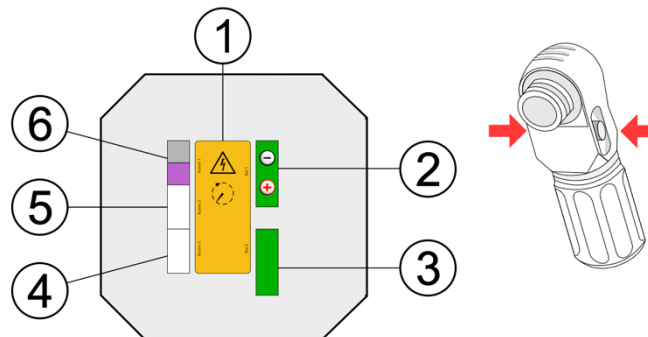
No.	Designation
1	Converter
2	Battery charger 1 (BL 1)
3	Battery charger 2 (BL 2)
4	Battery charger 3 (BL 3)
5	2 fastening screws per battery module right
6	2 levelling feet
7	2 levelling feet
8	2 fastening screws per battery module left
9	Battery module 3 (BM 3)
10	Battery module 2 (BM 2)
11	Battery module 1 (BM 1)


8.8 Connections on the battery module



No.	Designation				
1	DRY contact				
2	LED display				
3	Activation button				
4	CAN				
5	Connections for battery current				
Designation	Farbe	Colour	Couleur	Colore	
Fault	lila	purple	pourpre	porpora	
Warning	grau	grey	gris	grigio	

8.9 Connections on the battery charger (front)



No.	Designation
1	Directions and warnings
2	Battery current 1
3	 Do NOT use - battery current 2
4	Communication 3 (Comm 3) RJ45 socket
5	Communication 2 (Comm 2) RJ11 socket - NOT used
6	Communication 1 (Comm 1) Warning and Fault

9 Retrofitting of VARTA element backup

9.1 Initial situation of VARTA element backup 1 battery charger

A battery charger (BL) and a battery module (BM) are installed in the energy store. Battery module 1 (BM 1) is positioned on the back, on the back wall of the storage cabinet.

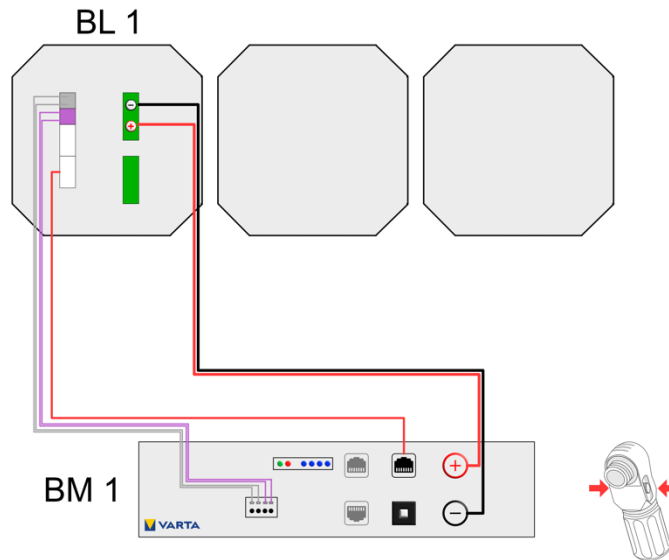


Figure 1: Battery charger 1 - battery module 1

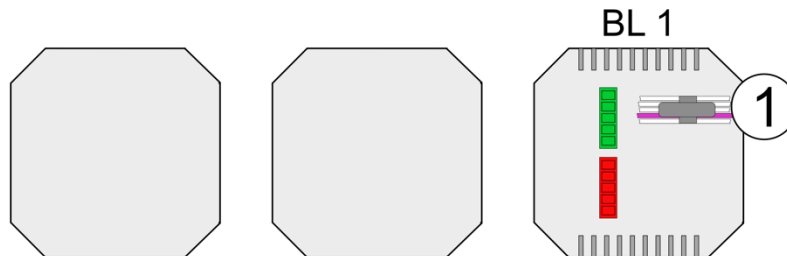


Figure 2: Battery charger 1 - back

1	Cable of converter with inscription and 1 x colour: <i>violet</i>
---	---

9.2 Retrofitting of VARTA element backup 2. battery charger

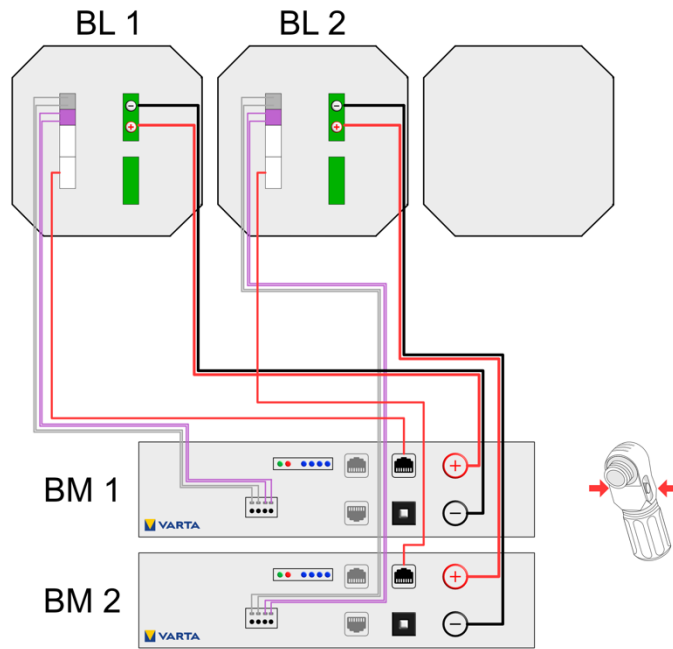


Figure 3: Battery chargers 1 and 2, battery modules 1 and 2

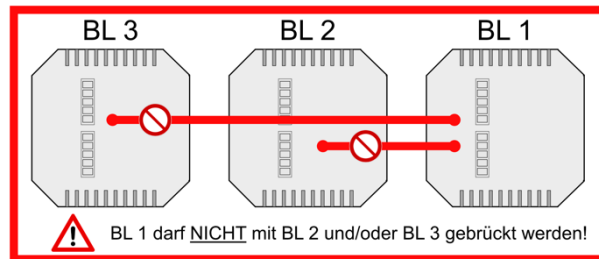
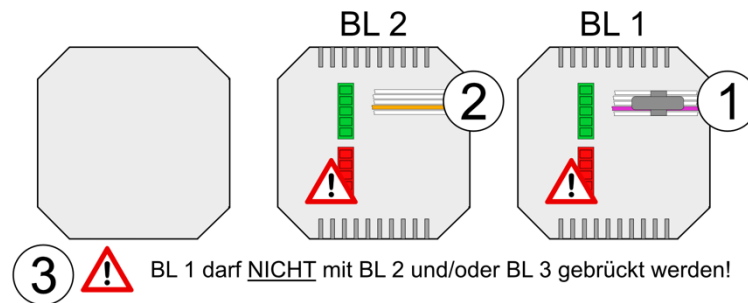
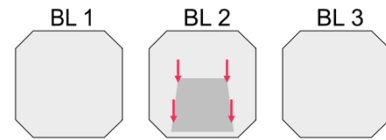


Figure 4: Battery charger 1 and 2 back

1	Cable of converter with inscription and 1 x colour: <i>violet</i>
2	Connect the cable of converter 1 x colour: <i>orange</i> to the battery charger 2 (BC 2)
3	! Battery charger 1 must NOT be bridged with battery charger 2 and/or battery charger 3!

Mounting battery charger 2

- Remove the cover at position BL 2.
- Remove the bottom plate in battery charger shaft BL 2.
- Mount battery charger 2. The battery charger locks into the end position. It is not necessary to use a screwdriver.



Mounting battery module 2

Battery module 2 (BM 2) is positioned in front of battery module 1 (BM 1).

a. Battery current connection (no. 5):

- Pay attention to the polarity.
- Insert the two plugs.

b. Communication (no. 1):

- Pay attention to the pin assignment.
- Insert the four communication cables into the openings of the clamping connector.
- The connections are self-clamping.

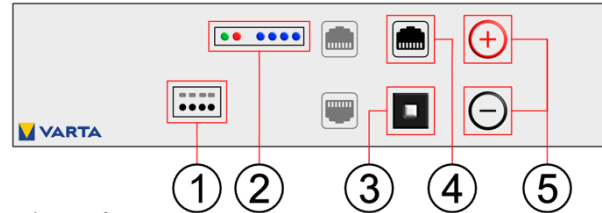
c. Communication (no. 4):

- Insert the communication cable (red, CAN).

d. Attaching:

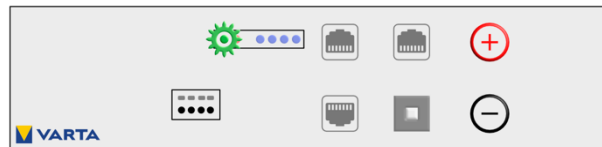
- Slide battery module 2 backwards.
- Attach the battery module to the mounting holes of the tracks with the screws provided.

Tool: Allen key size 4



Connect battery modules:

- Press the activation button (no. 3) on the battery modules.
The LED display on the battery modules displays the functionality.



9.3 Retrofitting of VARTA element backup 3. battery charger

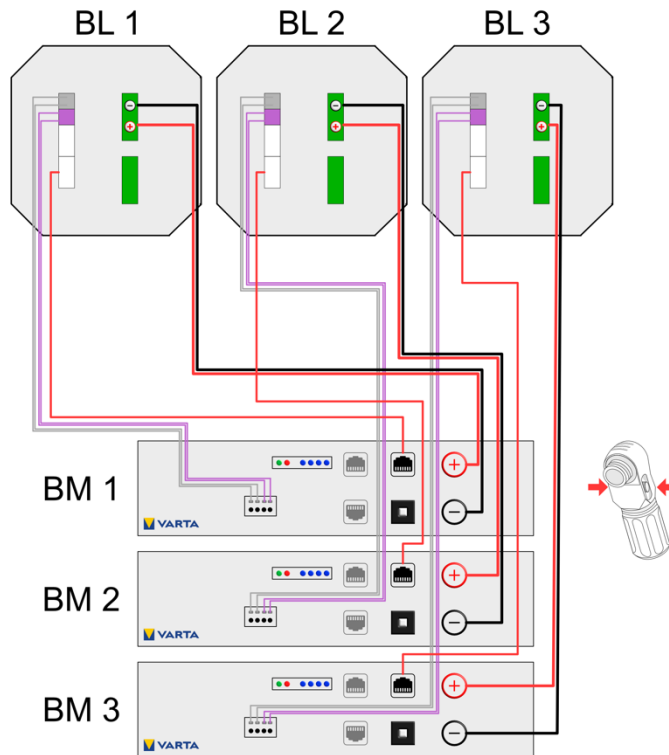


Figure 5: Battery chargers 1 and 2, battery modules 1, 2 and 3

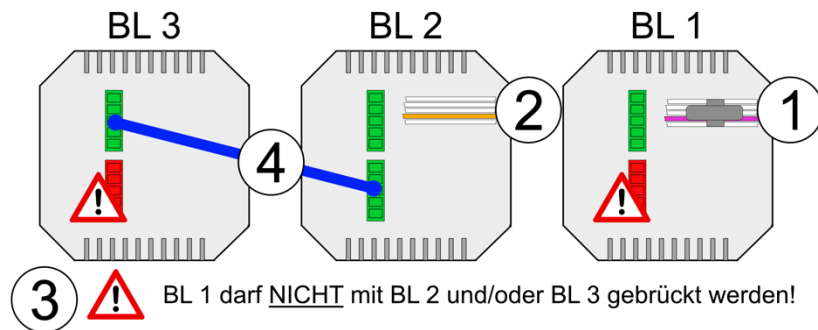
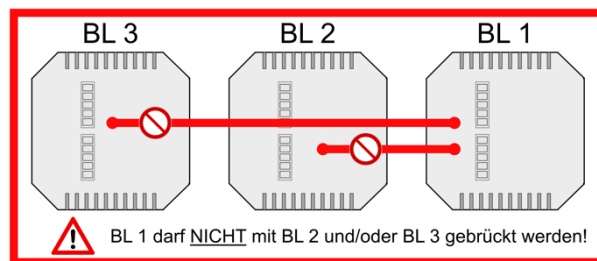



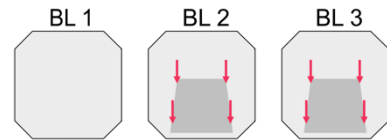
Figure 6: Battery chargers 1, 2 and 3 back



1	Cable of converter with inscription and 1 x colour: <i>violet</i>
2	Connect the cable of converter 1 x colour: <i>orange</i> to the battery charger 2 (BC 2)
3	 Battery charger 1 must NOT be bridged with battery charger 2 and/or battery charger 3!
4	Connect the bridge from battery charger 2 (BC 2) to battery charger 3 (BC 3)

Mounting battery chargers 2 and 3

- Remove the cover at position BL 2 and BL 3.
- Remove the bottom plates of battery charger shaft BL 2 and BL 3.
- Mount battery chargers 2 and 3. The battery chargers lock into the end position. It is not necessary to use a screwdriver.



Mounting battery module 2

- Battery module 2 (BM 2) is positioned in front of battery module 1 (BM 1).

Mounting battery module 3

- Battery module 3 (BM 3) is positioned in front of battery module 2 (BM 2).

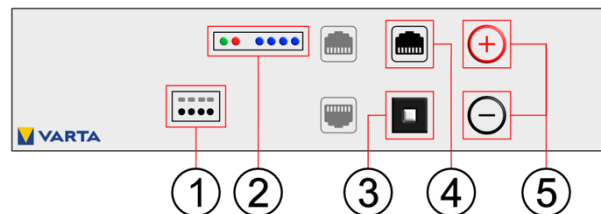
First create the connection between battery charger 2 (BL 2) and battery module 2 (BM 2).

a. Battery current connection (no. 5):

- Pay attention to the polarity.
- Insert the two plugs.

b. Communication (no. 1):

- Pay attention to the pin assignment.
- Insert the four communication cables into the openings of the clamping connector.
- The connections are self-clamping.



c. Communication (no. 4):

- Insert the communication cable (red, CAN).

d. Attaching:

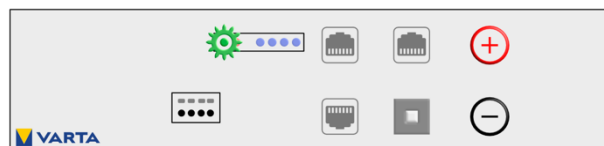
- Slide battery module 2 backwards.
- Attach the battery module to the mounting holes of the tracks with the screws provided.
Tool: Allen key size 4

e. Connect battery charger 3 and battery module 3

- Repeat the process starting at *point a* to create the connection between battery charger 3 (BL 3) and battery module 3 (BM 3).

Connect battery modules:

- Press the activation button (no. 3) on the battery modules.
The LED display on the battery modules displays the functionality.



9.4 Closing the storage cabinet

Before you close the energy store, please check:

- Are all tools removed?
- Is the interior clean?
- Are there no loose parts in the interior?
- Are there no small parts in the interior?
- Are all cable connections created correctly?

If necessary, go through the points again.

If all the points are OK, then:

- Lock the energy store with the screws and then perform the commissioning according to chapter 11, page 30.

10 Retrofitting of VARTA element backup

10.1 Initial situation of VARTA element backup 2 battery charger

Two battery chargers (BL) and two battery modules (BM) are installed in the energy store. Battery module 1 (BM 1) is positioned on the back, on the back wall of the storage cabinet. Battery module 2 (BM 2) is positioned in front of battery module 1 (BM 1).

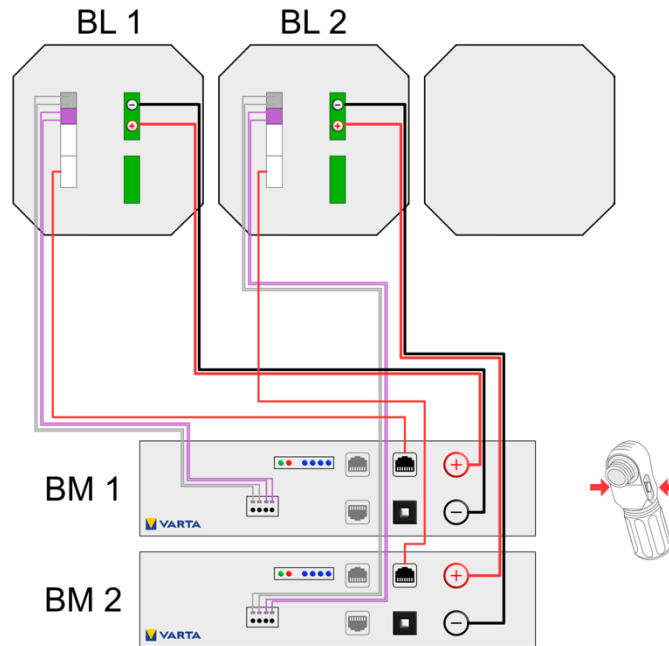


Figure 7: Battery chargers 1 and 2, battery modules 1 and 2

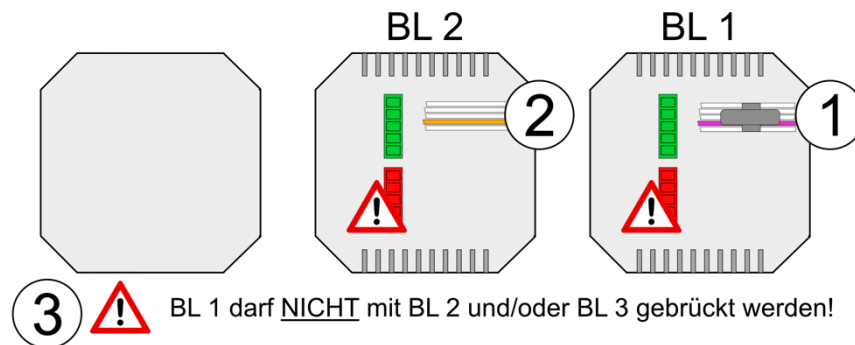

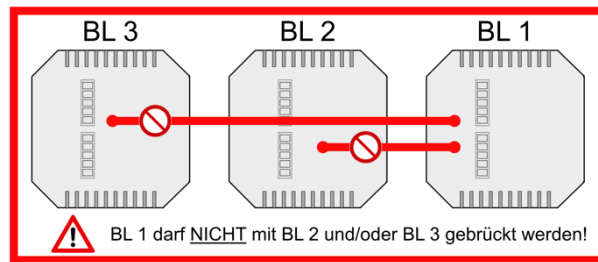
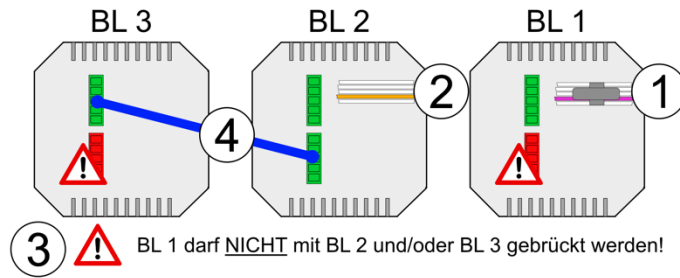



Figure 8: Battery charger 1 and 2 back

1	Cable of converter with inscription and 1 x colour: <i>violet</i>
2	Connect the cable of converter 1 x colour: <i>orange</i> to the battery charger 2 (BC 2)
3	 Battery charger 1 must NOT be bridged with battery charger 2 and/or battery charger 3!

10.2 Retrofitting of VARTA element backup 3. battery charger

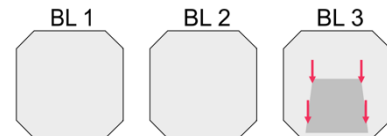


1	Cable of converter with inscription and 1 x colour: <i>violet</i>
2	Connect the cable of converter 1 x colour: <i>orange</i> to the battery charger 2 (BC 2)
3	 Battery charger 1 must NOT be bridged with battery charger 2 and/or battery charger 3!
4	Connect the bridge from battery charger 2 (BC 2) to battery charger 3 (BC 3)

Battery module 3 (BM 3) is positioned in front of battery module 2 (BM 2).

Mounting battery charger 3

- Remove the cover at position BL 3.
- Remove the bottom plate from battery charger shaft BL 3.
- Mount battery charger 3. The battery charger locks into the end position. It is not necessary to use a screwdriver.



Mounting battery module 3

- Battery module 3 (BM 3) is positioned in front of battery module 2 (BM 3).

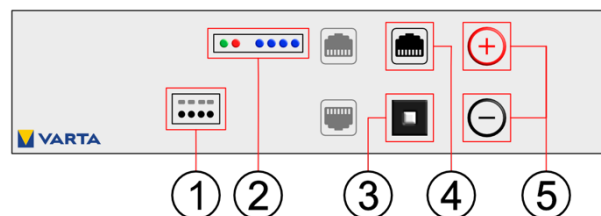
First, establish a connection between battery charger 3 (BL 3) and battery module 3 (BM 3).

f. Battery current connection (no. 5):

- Pay attention to the polarity.
- Insert the two plugs.

g. Communication (no. 1):

- Pay attention to the pin assignment.
- Insert the four communication cables into the openings of the clamping connector.
- The connections are self-clamping.



h. Communication (no. 4):

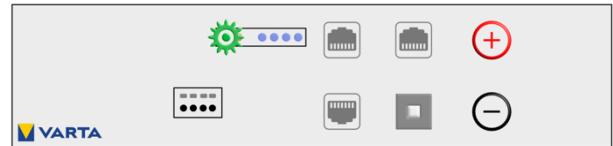
- Insert the communication cable (red, CAN).

i. Attaching:

- Slide battery module 1 backwards.
 - Attach the battery module to the mounting holes of the tracks with the screws provided.
- Tool:** Allen key size 4

Connect battery modules:

- Press the activation button (no. 3) on the battery modules.
The LED display on the battery modules displays the functionality.



10.3 Closing the storage cabinet

Before you close the energy store, please check:

- Are all tools removed?
- Is the interior clean?
- Are there no loose parts in the interior?
- Are there no small parts in the interior?
- Are all cable connections created correctly?

If necessary, go through the points again.

If all the points are OK, then:

- Lock the energy store with the screws and then perform the commissioning according to chapter 11, page 30.

11 Commissioning

11.1 Software update

The retrofit requires an update of the software.

- Please contact the technical service.

11.2 Further commissioning


After the software update, please follow the operating manual for the energy store. You can download the operating manual by scanning the following QR code.



12 Appendix

Figure 1: Battery charger 1 - battery module 1.....	22
Figure 2: Battery charger 1 – back	22
Figure 3: Battery chargers 1 and 2, battery modules 1 and 2.....	23
Figure 4: Battery charger 1 and 2 back.....	23
Figure 5: Battery chargers 1 and 2, battery modules 1, 2 and 3	25
Figure 6: Battery chargers 1, 2 and 3 back.....	25
Figure 7: Battery chargers 1 and 2, battery modules 1 and 2.....	27
Figure 8: Battery charger 1 and 2 back.....	27

13 Declaration of conformity

 Conformity with the EU directives relevant to the device is confirmed by the CE sign.

Declaration of conformity (DoC)

VARTA Storage GmbH declares that the retrofitting of the VARTA element backup is in accordance with the applicable directives 2014/30/EU and 2014/35/EU. You will find the complete declaration of conformity on our website: www.varta-ag.com.

This retrofit manual is a document without contractual character. Errors, print errors and changes reserved.