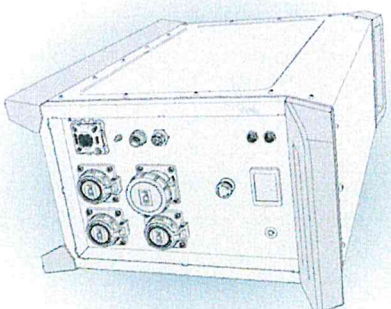


ecoPowerTrolley

Technical Manual



ecovolt AG
Gersauerstrasse 71
6440 Brunnen
Switzerland

+41 41 811 41 42
info@eco-volta.com
eco-volta.com

This document must not be reproduced or otherwise used without the written approval of ecovolt AG.
© 2023 ecovolt AG. All rights reserved. Information is supplied without liability. Subject to changes.

12 Attachment

12.1 Environmental protection

ecovolt AG products have an eco-conscious design to ensure they make as little impact on the environment as possible. The following features come as standard when we design our products:

- ecovolt AG products are made of high-quality materials in an effort to maximise their service life.
- The product is designed so that the various materials can be separated for reprocessing and efficient recycling.
- ecovolt AG is always working on product development and reducing its environmental impact.

ecovolt AG products help users to consume energy more efficiently, which reduces the day-to-day impact on the environment. ecovolt AG endeavours to keep the impact on people and the environment low throughout the entire product life cycle and to re-introduce as much material as possible back into the material cycle. It is important that the user handles all products carefully and uses them efficiently.

For information on the return and disposal of the products, see "Disposal and recycling".

12.2 Disposal and recycling

 Information on the disposal of electrical and electronic equipment and batteries can be found at <https://eco-volta.com/products/downloads>.

 The packaging materials are recyclable. Please do not dispose of the packaging in household waste, but reuse it or return it separately according to the local recycling system.

12.3 Service, maintenance and support

Service, maintenance and support are performed by ecovolt AG and its partners.

12.4 Accessories and spare parts

Accessories and spare parts can be purchased from:

ecovolt AG
Gersauerstrasse 71
6440 Brunnen
Switzerland
+41 41 811 41 42
info@eco-volta.com
eco-volta.com

Contents

1	About this content.....	1
1.1	Validity.....	1
1.2	Content and purpose.....	1
1.3	Additional information.....	1
1.4	Change history.....	1
1.5	Warnings and categories.....	1
2	Getting to know the device.....	2
2.1	Intended use.....	2
2.2	Improper use.....	2
2.3	Technical features.....	2
2.4	Which device variants are available?.....	2
2.5	How is the device constructed?.....	2
2.6	Interpret labels.....	4
2.6.1	Identify the device using the nameplate.....	4
2.6.2	Other markings on the device.....	5
2.7	Technical data.....	6
3	Safety comes first!.....	9
3.1	General and special safety instructions.....	9
3.2	Fire protection measures.....	12
4	Check the scope of delivery and procure accessories.....	14
5	Installing the wheels and feet.....	15
6	Transport and set up the device.....	18
7	Operating the device.....	20
7.1	First step: Getting to know the emergency stop function.....	20
7.2	Charging the battery.....	20
7.3	Connect device for operation (discharging).....	21
7.4	Turning the device on.....	21
7.5	Charging electric vehicles.....	22
7.6	Read out and set operating parameters.....	22
7.7	About the standby mode.....	26
7.8	Turning the device off.....	26
8	Storage of the device.....	27
9	Clean and maintain the device.....	28
10	Identifying and fixing faults.....	29
11	Repairing the device.....	33
12	Attachment.....	34
12.1	Environmental protection.....	34
12.2	Disposal and recycling.....	34
12.3	Service, maintenance and support.....	34
12.4	Accessories and spare parts.....	34

11 Repairing the device

There is no repair work that can be carried out by the user themselves.
Contact your supplier if servicing is required.

ISO monitor		
Code	Cause	Remedy
90	IMD error	Disconnect all loads from the device.
91	IMD communication error	Disconnect the charging cable from the device.
92	Insulation resistance too low, ground fault	Restart the device.
93	IMD error	Restart the device.
94	Time-out error	

- 1

About this content

This section contains important information on the content.
- 1.1

Validity

The content is valid for the following product:
 - Product name: ecoPowerTrolley
- 1.2

Content and purpose

This information is limited to the assembly, installation, setup and basic operation of the product.
- 1.3

Additional information

Additional information can be downloaded here:
Additional information about the device
- 1.4

Change history

- TM_ecoPowerTrolley_1.0

- 1.5

Warnings and categories

Warnings must be observed and are therefore specially marked. They contain information on potential damage or injuries so that accidents and damage can be prevented.

⚠ DANGER

Indicates an immediate threat which could lead to serious injuries or death.

⚠ WARNING

Indicates a potentially dangerous situation which could lead to serious injuries or death.

⚠ CAUTION

Indicates a potentially dangerous situation which could lead to minor injuries.

SAFETY INSTRUCTION

This warning concerns the proper way to handle the product. If ignored, it could lead to damage or loss.

NOTICE

Contains additional information on the product to help users better understand and operate the product.

2 Getting to know the device

2.1 Intended use

The device is a mobile, battery-powered energy supply for electrical consumers that will be operated off-grid with household or three-phase current.

2.2 Improper use

Any use that deviates from these operating instructions is contrary to the intended use. Use contrary to the intended purpose may result in malfunctions and damage to property or personal injury.

2.3 Technical features

Due to the specific design of the ecoPowerTrolley, the operation of sensitive loads (e.g. AV devices) as well as the use of devices with strong repercussions on the AC grid (e.g. due to high starting currents or reactive power requirements) does not pose a problem.

The ecoPowerTrolley meets the requirements of protection class IP65 and is therefore suitable for both indoor and outdoor use.

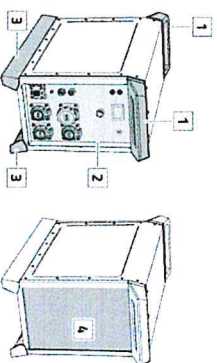
The ecoPowerTrolley complies with the strict limit values for the emission of electromagnetic interference and its insensitivity to such interference, meaning that it is equally suitable for use in residential and industrial areas.

2.4 Which device variants are available?

- ecoPowerTrolley version for EU
- ecoPowerTrolley version for CH

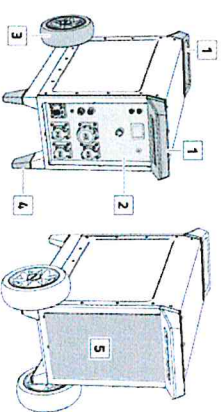
2.5 How is the device constructed?

Device with runners



- 1 Carrying handle
- 2 Control panel
- 3 Runners
- 4 Cooling fins

Device with wheels and feet



- 1 Carrying handle
- 2 Control panel
- 3 Wheels
- 4 Feet
- 5 Cooling fins

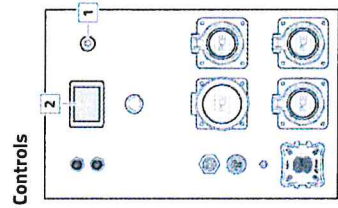
Errors in power electronics

Code	Cause	Remedy
20	General Inverter error	Restart the device.
21	Phase voltage U faulty	Disconnect all loads from the device.
22	Phase voltage V faulty	Disconnect the charging cable from the device.
23	Phase voltage W faulty	Restart the device.
25	General Power electronics error	Restart the device.
27	General DC/DC converter error	Disconnect all loads from the device.
28	General Power electronics error	Disconnect the charging cable from the device.
29	Pre-charging error charging mode	Restart the device.

System error

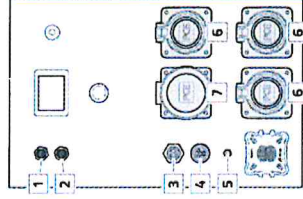
Code	Cause	Remedy
30	Fan blocked	Servicing is required. Contact your supplier.
31	Input protection error	Restart the device.
32	Output protection error	
35	State machine error	
36	DC link error	
40	Time-out error	Restart the device.
41	Initialization error	
42	DC precharge error	
43	Time-out error	
44	Time-out error	Restart the device.
45	System error	
46	Time-out error	
47	Time-out error	
48	System error	Restart the device.
49	Time-out error	
50	Time-out error	
51	System error	
52	Time-out error	Restart the device.
53	Time-out error	
60	Output protection error	
61	Output protection error	
62	Input protection error	Restart the device.
63	Input protection error	

Code	Cause	Remedy
19	Error int. Battery switch	Restart the device.



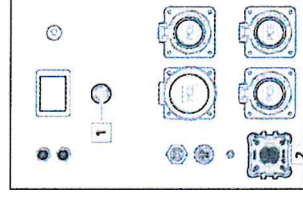
- 1 On/off switch
- 2 Display/touchscreen

Connections



- 1 Connection for CAN communication
- 2 Output 24 V DC
- 3 Connection for charging cable of PV system
or
Connection for parallel connection of max. 2 trolleys (coming soon)
- 4 Connection for charging cable
- 5 Connection for external grounding
- 6 3 outputs 230 V +N +PE (CEE7/T23)
- 7 Output 3 x 400 V +N +PE (CEE16)

Safety devices

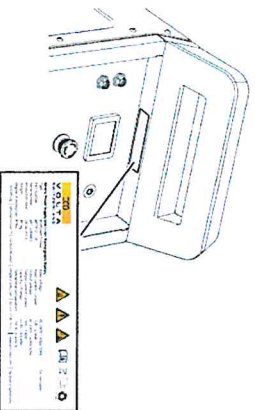


- 1 Emergency stop button
- 2 Bursting membrane (battery safety valve)

2.6 Interpret labels

2.6.1 Identify the device using the nameplate

Find nameplate



The nameplate can be found on the frame above the display.

Make sure that these operating instructions belong to your device. These operating instructions do not apply to other devices, even if they look similar or appear to be identical.

Interpreting information on the nameplate



- 1 Manufacturer's logo
- 2 Manufacturer contact information
- 3 Country of origin

Manufacturer information



- 4 Device name
- 5 Technical data

Technical data

Warning notices and safety instructions

- 6 Hot surface warning (cooling fins)
- 7 Electrical voltage warning
- 8 Warning about the dangers from charging batteries
- 9 Read the operating manual!
- 10 Do not dispose of the device in household waste!
- 11 Protection class II
- 12 Dispose of lithium-ion batteries in a recycling facility!
- 13 Do Not Open Device

10 Identifying and fixing faults

The bursting membrane has been triggered

Detection	Cause	Remedy
- During operation: Hissing or whistling noise or pop - The device has switched off.	Overpressure in the battery due to overheating because of a short circuit or overload	CAUTION Leaking toxic fumes. Ensure thorough ventilation or bring the device outdoors. 1. Allow the appliance to cool. ✓ After cooling, the bursting membrane resets itself. ✓ When the bursting membrane is reset, the device will be ready for operation again. 2. Check the device for proper functioning. 3. Avoid the cause of a renewed triggering.

The display shows an error code

Code	Cause	Remedy
1	Battery dead	Charge the battery.
2	Overcurrent occurred	Disconnect all loads from the device. Disconnect the charging cable from the device. Restart the device.
3	Emergency stop button pressed	Cancel the emergency stop. Restart the device.
4	Charging voltage missing (1 phase)	Restart the device.
5	Charging voltage missing (3 phases)	Restart the device.
6	Phase U overloaded	Disconnect all loads from the device.
7	Phase V overloaded	Disconnect the charging cable from the device.
8	Phase W overloaded	Restart the device.

Error in the battery management system (BMS)

Code	Cause	Remedy
10	General BMS error	Restart the device.
11	Battery temperature too high	Disconnect some of the loads from the device. Allow the battery to cool down.
12	Battery temperature too low	Store the device in a warmer environment.
13	Cell voltage too high	Wait until the battery has sufficiently discharged (at least 4 hours). Restart the device.
14	Cell voltage too low	Charge the battery.

9 Clean and maintain the device

Cleaning the device

- Turn off the connected loads.
- Switch the device off.
- Disconnect all cables from the device.
- Close all connection covers.
- Allow the device to cool off completely.
- Clean with gentle tools.
- Check the device for damage.

SAFETY INSTRUCTION	
• Do not use sharp objects or aggressive or abrasive cleaning agents for cleaning.	
• Do not clean the device with a high-pressure cleaner.	

Housing: Clean the housing with a damp cloth.

Display: Clean the display using a slightly damp microfiber cloth.

Cooling fins: Clean the interspaces of the cooling ribs with a narrow joint brush.

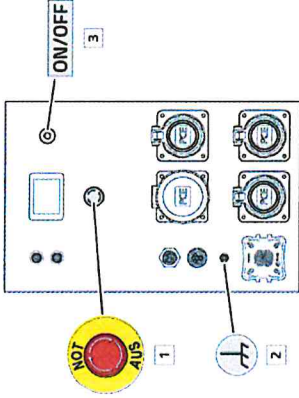
Maintaining the device

Make sure that the following labels are undamaged and easy to read or recognize:

- Nameplate
- Identification of the emergency stop button
- Symbol for external grounding
- Label of the on/off button

Replace damaged or unreadable labels.

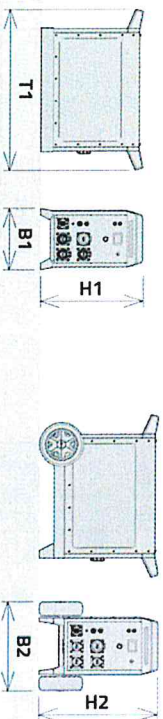
2.6.2 Other markings on the device



- 1 Identification of the emergency stop button
- 2 Symbol for external grounding
- 3 Label of the on/off button

2.7 Technical data

Physical data



B1	Width	357 mm	B2	Width	540 mm
H1	Height	596 mm	H2	Height	596 mm
T1	Depth	944 mm			
Weight	80 kg		Weight	83 kg	

Electrical data

Outputs	3 sockets (CEE7/T23): 230 V +N +PE; 50/60 Hz 1 socket (CEE16): 3 x 400 V +N +PE; 50/60 Hz
Inputs	Charging voltage from the mains, from the generator or from the PV system: 3/N/PE AC 400 V 50 Hz or 1/N/PE AC 230 V 50 Hz
Communication interface	CAN
Grounding terminal	M6 threaded bolt
Continuous power	10 kW
Max. discharge rate	1 minute: 13 kW 10 seconds: 16 kW
Charging capacity	4,4 kWh
Energy	8 kWh
Net capacity	8,9 kWh
Overall efficiency	max. 96%
Protection type	IP64

Environmental conditions

Mode of operation	Temperature range	Relative humidity
Operation (unloading)	-10...+40 °C	Max. 95% (non-condensing)
Loading	0...+40 °C	Max. 95% (non-condensing)
Storage	-10...+65 °C	Max. 95% (non-condensing)

Technical features

- Touchscreen for reading and setting the operating parameters
- Fanless dissipation of waste heat via cooling fins
- All inputs and outputs overload and short-circuit proof
- Emission-free and noiseless charging and discharging operation

8 Storage of the device

What is meant by "putting the device into storage"?

"Putting the device into storage" means shutting down the device in order not to use it for a longer period of time.

Storage basics

To ensure a long service life, store the device at temperatures between 0 °C and +23 °C in an environment with low humidity.

Storage of the device at short notice

Storage for a maximum of 6 months:

- Charge the battery completely, at least to >30% SoC.

Long-term storage of the device

Storage for more than 6 months:

- Charge the battery completely, at least to >30% SoC.
- Check the state of charge every 6 months.
- If the charge level drops below 30% SoC: Charge the battery completely.

Avoid deep discharge

Batteries are subject to self-discharge, i.e. the battery voltage gradually decreases, even if no energy is drawn.

If the battery voltage drops below a minimum value, there is a risk of harmful deep discharge. To prevent deep discharge, the protection function of the battery management system (BMS) comes into effect as follows:

- The battery will be switched off.
- Restarting the device will be blocked.
- The battery will not be released until it is fully charged.

To conserve the battery and ensure the operational readiness of the device: Adhere to the 6-monthly inspection interval and recharge the battery in good time.

7.7 About the standby mode

What is standby mode?

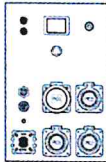
In standby mode, the device switches off the internal power electronics to save energy. Standby mode is automatically activated if no power is accessed for more than 30 minutes.

What is standby mode?

- The device will switch off the power electronics.
- The display will turn off.
- No output voltages will be available.

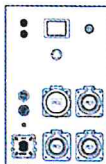
Cancelling standby mode

To cancel the standby mode, turn the device back on.



- 1 To turn the unit on press the On/Off button.
- 2 Wait until the display shows the current operating values.
✓ All output voltages are available.
✓ The device is ready for operation.
- 3 Turn on the connected loads.

7.8 Turning the device off



- 1 Turn off the connected loads.
- 2 To turn the device off, press the on/off button.
- 3 As soon as the display has turned off:
✓ All outputs are de-energized.
✓ The device is powered off.

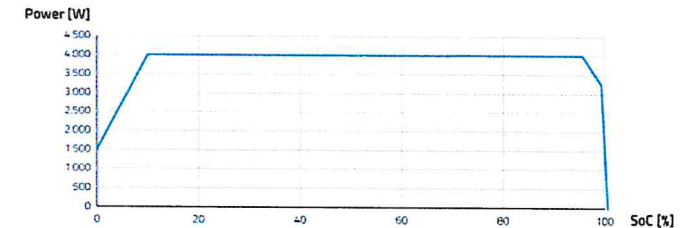
Derating operation

In order to extend the battery life and prevent failures, the device automatically switches to derating mode in extreme operating conditions. In derating mode, the power that can be supplied to the device during charging or withdrawn during operation is limited.

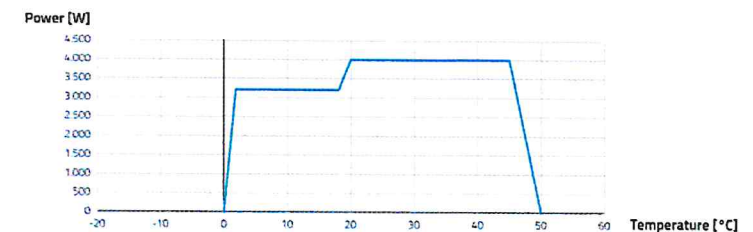
The triggering factors for derating operation include:

- High battery temperature
- Low battery charge status

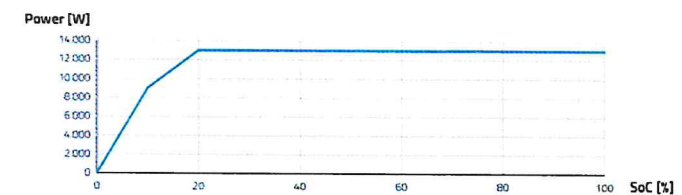
The following curves show the derating behavior:



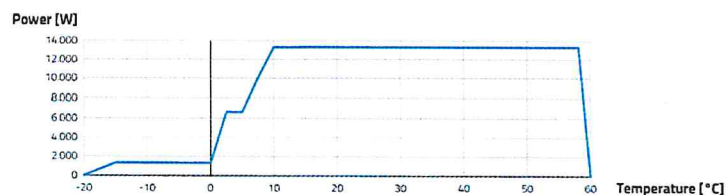
Charging power depending on the battery charge status



Charging power depending on the battery temperature
(outside the permissible temperature window, the charging process does not start)



Output power depending on the battery charge status
(if the reference power is exceeded, the device switches off)



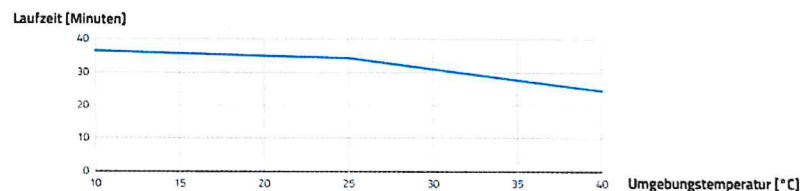
Output power depending on the battery temperature

Operation at high ambient temperatures

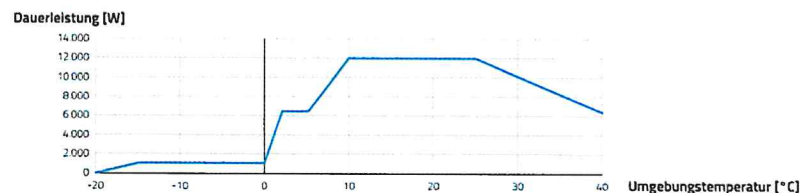
The ecoPowerTrolley dissipates the waste heat generated during operation via cooling fins to the ambient air. Consequently, the attainable cooling capacity is reduced at high ambient temperatures. If the peak power is removed for a short time, this effect is not significant; otherwise, the following limitations arise:

- When the maximum output power is removed, the attainable running time is reduced.
- The achievable continuous power is reduced depending on the ambient temperature.

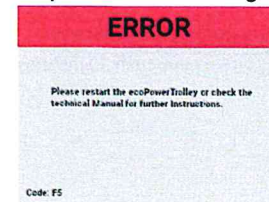
The following curves show the influences of the ambient temperature:



Attainable runtime as a function of ambient temperature at maximum continuous output

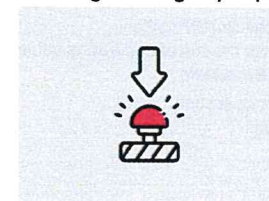


Attainable continuous output depending on ambient temperature

Respond to an error message

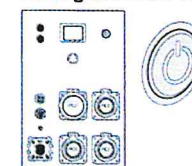
If a malfunction has occurred, the display shows an error message.

- Check the operating instructions for the cause of the error.
- Eliminate the cause of the error.
- Restart the device.

Detecting an emergency stop

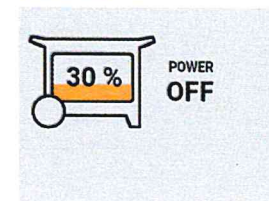
If the emergency stop button has been pressed, the device will have switched off.

- Remove the cause of the emergency stop.
- Restart the device.

Turning the device off

To turn the device off:

- Press the on/off button.



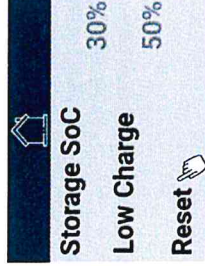
When the device is switched off, the screen will display the following value:

- **30%:** Current state of charge of the battery in percent



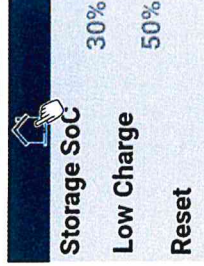
Switch back and forth between the values:

- **50%:** Limit input power to 50%
- **OFF:** Cancel limit



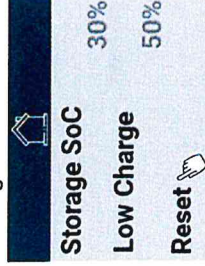
Reset: This function allows you to delete your settings and reset the device to the factory settings.

See: "Resetting the unit to the factory settings"

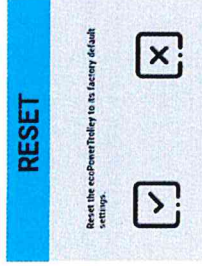


To return to the main screen:
Click the "Home" icon.

Resetting the unit to the factory settings



- Select "Reset".



The screen will display the reset options.



- If you are sure:
- Perform the reset.
 - ✓ All entries will be deleted.
 - ✓ The display jumps back to the main screen.



- If you are not sure:
- Cancel the reset.
 - ✓ All settings will be preserved.
 - ✓ The display jumps back to the previous screen.

3 Safety comes first!

3.1 General and special safety instructions

Personnel qualifications

- No special personnel qualification is required for the use of the device. The device may be used by any person who is physically and mentally capable of doing so and who has fully read and understood the operating instructions.
- Maintenance and repair work may only be carried out by a qualified electrician.

What security features does the device have?

Protection class II

The design of the device meets the requirements for a device of protection class II by ensuring the following galvanic isolations:

- between charging input and outputs
- between housing and outputs

Operation of consumers of protection class I

Thanks to the equipotential bonding provided at the outputs, protection class I loads can be safely operated on the device.

Limitation of the short-circuit current

The internal DC fuse limits the short-circuit current to <500 A (peak).

Protection in case of insulation faults

In the event of a (single) insulation fault, no body current can flow because the outputs have no grounding.

Automatic shutdown in case of grounding fault or housing short circuit

If an internal or external grounding fault or housing short circuit occurs, the device switches off immediately.

Automatic shutdown in case of overload

In the following cases, the device switches off due to overload:

- Exceeding the time limit when drawing the full rated current
- Exceeding the maximum permissible drawing current

Automatic shutdown in case of overheating

Overheating occurs when both values "ambient temperature" and "discharging current" exceed a limit value over a certain period of time. Then the device switches off.

What additional safety precautions must the user take?

Comply with legal safety regulations

By connecting several loads to the device, a low-voltage network is created, during the operation of which legal safety regulations must be observed. Research the regional safety regulations and implement them under your own responsibility.

Avoid residual current

To prevent personal injury and property damage due to residual current: Connect a residual current circuit breaker (RCD) upstream of each individual connected load.

Limit the line network for connected loads

With the increasing expansion of the line network, the risk of malfunctions and undetected sources of error, e.g. damaged cables, increases.

- Do not use unnecessary distribution sockets.
- Do not use any extension cables or keep them as short as possible.
- Ensure clear cable routing.

Maintain the operational safety of the connected loads

Have the electrical safety of the loads checked regularly by a qualified electrician.

Warning for persons with medical implants

- Keep away from the device. During operation of the device, electromagnetic radiation is generated, which can have effects on medical implants.

General safety information

- Do not open the device housing.
- Only use the device under the permissible environmental and operating conditions.
- Do not use the device as a storage area or for sitting or climbing.
- Make sure that the device always stands on flat ground without wobbling.
- Do not change any controls, connectors or safety elements.
- Do not immerse the device in water or mud.
- Avoid contact of the device with chemicals, fuels and lubricants.

Safety when handling the battery

- Do not open the battery.
- Only operate the device within the permissible temperature range.

Health protection information**• Danger due to harmful fumes.**

In case of damage and improper use of the device, vapors can escape, which can irritate the respiratory tract. If vapors have escaped, supply fresh air and consult a doctor if you have any complaints.

• Danger due to harmful fluids.

In case of damage and improper use of the device, liquids can escape, which can irritate the skin. If you have had skin contact with the liquids, rinse the skin under running water. If the fluids have reached the eye, consult a doctor.

Electrical safety information

- At all times, comply with the regionally applicable regulations for the construction of low-voltage systems and the safe operation of electrical loads.
- Do not operate the device if a cable is defective (e.g. damaged insulation or crushed or kinked sections).
- Comply with the prescribed standard tests.
- Do not connect any defective loads to the device.
- Turn off the connected loads when the operation ends.

Information on ambient temperature and heat dissipation

- Keep the device away from external heat sources (direct sunlight, radiators, fire).
- Ensure that the cooling fins can freely dissipate the waste heat.
- Do not install the device in a container or housing.

Load security

- Charge the battery only within its performance limits.
- Charge the battery only under the permissible environmental conditions.

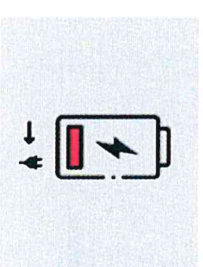
Screen display during operation

When in operation (during discharging), the screen will display the following values:

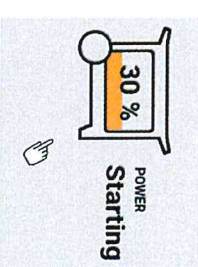
- **30%:** Current state of charge of the battery in percent
- **10.0 kW:** Current power output
- **3 h 25 min:** Estimated remaining operating time

If the screen shows an empty battery:

- Charge the battery to prevent uncontrolled failure of the connected loads.

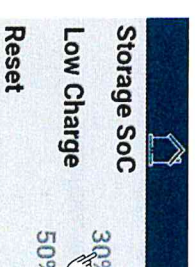
**Set operating parameters**

To set the operating parameters, proceed as follows:



Tap the screen.

✓ The settings will be shown.

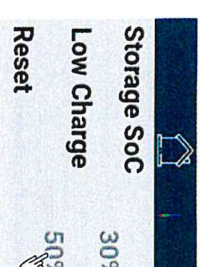


Storage SoC: This function allows you to set a charging limit for the battery, so you can store or transport the battery.

Switch back and forth between the values:

- **30%:** Set charging limit to 30%
- **OFF:** Cancel charging limit

Low Charge: This function allows you to limit the input power.



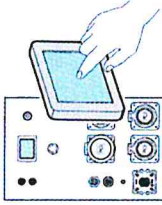
7.5 Charging electric vehicles

If you want to charge an electric vehicle with the ecoPowerTrolley, use a manufacturer-independent mobile charging unit.

Examples: **NRGkicker Juice Booster**. These devices are tested for proper functioning on the ecoPowerTrolley.

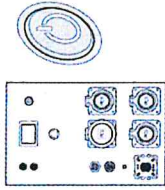
7.6 Read out and set operating parameters

About the function of the display



The display is a touchscreen. It reacts like a smartphone to command inputs by touching with the finger or using an input pen.

Turning the device on



To turn the device on:

- Press the on/off button.

When the device starts, the start screen is displayed.

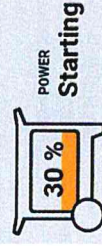
- Wait until the main screen is displayed.



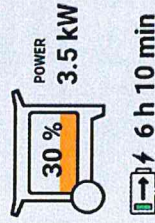
As soon as the main screen is displayed, the device is ready for operation.

The main screen will display the following value:

- **30%:** Current state of charge of the battery in percent



Charging screen display



When charging, the screen will display the following values:

- **30%:** Current state of charge of the battery in percent
- **3.5 kW:** Current charging capacity
- **6 h 10 min:** Estimated remaining charging time until the battery is fully charged.

Safety during operation (discharging)

- **High voltage and high currents at the voltage outputs.**

Danger due to arc faults when disconnecting plugs.

Do not disconnect any plugs during discharging operations.

Switch off the device before disconnecting plugs.

- **Hot cooling fins in operation.**

Danger of burns.

Do not touch the cooling fins.

- **Danger of heat accumulation.**

Keep a minimum distance of 20 cm from walls and objects all around.

- Only operate the device within its performance limits.
- Only operate the device under the permissible environmental conditions.
- Avoid short circuits at the outputs.

Storage security

- Allow the device to cool completely before storage.
- Store the device in a horizontal position.
- Store the device in a temperature range of -10 to +45 °C.
- Keep the device away from direct sunlight.
- Keep the device away from mechanical influences.
- Store the device in such a way that unauthorized access is prevented.

Safety during transport

- Allow the device to cool completely before transporting.
- Wear steel cap shoes and non-slip protective gloves.
- Only lift the device on the appropriate carrying brackets.
- When carrying the device, make sure that it does not tip over or fall down.
- Secure the on/off button against being pressed unintentionally.
- When carrying the device, make sure that nobody is in the fall zone.
- When transporting vehicles, make sure that the load is secured correctly.
- When transporting vehicles, carry an ABC fire extinguisher (at least 2 kg).

Cleaning and maintenance security

- Allow the device to cool completely before cleaning and before maintenance work.
- When cleaning, wear safety gloves.

Note on maintenance and repair

- Maintenance and repair work may only be carried out by qualified personnel.

3.2 Fire protection measures

⚠ WARNING

Organic cell content is flammable from 125 °C.

Harmful gases are released in the event of overheating or fire and the battery may explode.

Harmful gases:

- Hydrogen fluoride
- Carbon monoxide
- Carbon dioxide

Prevent causes of overheating:

- External effects of heat
- Maximum permissible load is exceeded
- Overcharging
- Short circuit
- Mechanical damage

Preventative measures

- Adhere to the storage instructions for Li-ion batteries.
- Inform the fire brigade about the storage locations of the Li-ion batteries and where the vehicles are parked or the machines stored.
- Mark the escape and emergency routes.
- Have suitable extinguishing agent available on site:
 - Water
 - Water with extinguishing agent additives
 - Gel extinguishing agent

SAFETY INSTRUCTION

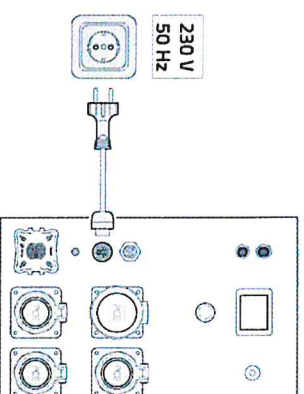
The following extinguishing agents are not suitable and must not be used:

- ABC or BC powder
- Metal fire powder
- Carbon dioxide

Measures for fire-fighting

- In the case of batteries inside a vehicle:
 - Interrupt the power supply to the battery if possible.
 - Leave the vehicle.
- In the case of batteries outside a vehicle:
 - Remove the batteries from the hazardous surroundings if possible.
- Alert the fire brigade and notify them that a Li-ion battery is on fire.
- Do not expose yourself to any personal risk of being harmed yourself.
- Only take measures yourself when you have had enough practice in them.
- Wear suitable personal protective equipment during fire-fighting:
 - Self-contained breathing apparatus as per NIOSH/MSHA
 - Protective clothing
 - Protective gloves
- Keep people that are unprotected or not required for emergency response outside of the hazardous area.
- Fight the fire using suitable extinguishing agent. See: "Preventative measures".
- Maintain the following minimum distances when fighting the fire:

Charging the batteries



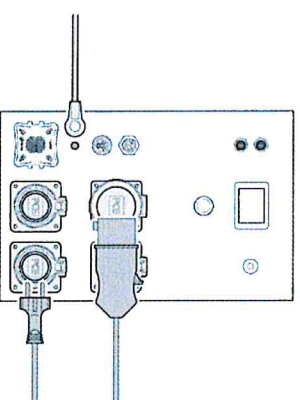
- 1 Make sure the appliance is switched off.
- 2 Connect the charging cable to the device. Lock the device plug by turning it to the right until it stops.
- 3 Connect the charging cable to the mains.
 - ✓ The device will switch off.
 - ✓ Charging starts.
 - ✓ The display shows the main screen.
- 4 After fully charging:
Switch the device off.
- 5 Remove the charging cable.

Troubleshooting when residual current device (RCD) is triggered

If the residual current device triggers during charging, try the following:

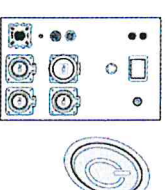
- In addition to the ecoPowerTrolley, disconnect all other devices that are connected to this circuit.
- Connect the Schuko mains plug rotated by 180°.
- If the residual current device continues to be triggered:
 - Charge the battery at an outlet without residual current monitoring.

7.3 Connect device for operation (discharging)



- 1 Switch the device off.
- 2 Turn off the loads to be connected.
- 3 Connect the grounding cable. (Eligible for previous electrical safety check)
- 4 Connect the loads.
 - ✓ The device is ready for operation and may be switched on.

7.4 Turning the device on



- 1 To turn the unit on press the On/Off button.
- 2 Wait until the display shows the current operating values.
 - ✓ All output voltages are available.
- 3 Turn on the connected loads.
 - ✓ The device is ready for operation.

7 Operating the device

7.1 First step: Getting to know the emergency stop function

Familiarize yourself with the emergency stop function before starting up the device.

The emergency stop button is used to stop the device immediately in a hazardous situation. The consequences:

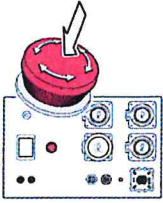
- All outputs are de-energized.
- All inputs are separated.
- The internal electronics remain in operation.
- The display shows "emergency stop button pressed".

SAFETY INSTRUCTION

The emergency stop button forces an irregular stop.

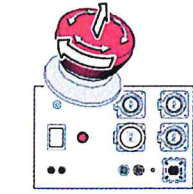
Do not use the emergency stop button to switch the device on and off.

Use the on/off button to turn the device on and off.



Press the emergency stop button:

- 1 Press the emergency stop button until it clicks into place.
✓ The device is stopped.



Cancel the emergency stop button again:

- 1 Make sure that the cause for pressing the emergency stop button has been eliminated.
✓ The device resumes its function.
- 2 Turn the button clockwise until it disengages.
✓ All connected loads start up again.
Loads with restart protection must be restarted manually.

7.2 Charging the battery

Preparing the device for its first commissioning

The battery is charged with approx. 30% SoC when delivered. Charge the battery completely before putting the device into operation for the first time.

Select a suitable charging socket

Due to the increased leakage current of the device of > 10 mA, the battery can only be charged at the following sockets:

- Sockets with 30 mA residual current device (RCD)
- Sockets without residual current device (RCD)

- In the case of portable and movable fire extinguishers with spray jet: at least 1 metre

- In the case of wall hydrants with spray jet (Euro nozzle): at least 3 metres

- In the case of wall hydrants with full jet: at least 5 metres

- In the event of significant amounts of smoke or gas being released:
 - Immediately leave the room or the hazardous area.
 - Ensure there is sufficient ventilation.

Fire watch

SAFETY INSTRUCTION

Batteries may also re-ignite after a long period of time.

Store the batteries under water once they have been extinguished:

- In a sufficiently large water tank
- In an emergency container

If the extinguished battery has to be brought to a different location for the fire watch:

- Obtain information from the manufacturer about the transport regulations.
- Obtain transport approval from the relevant authorities.
- Have the battery transported by a specialist company.

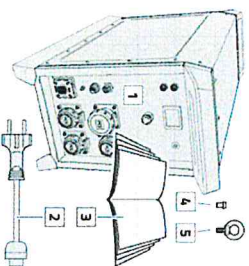
4 Check the scope of delivery and procure accessories

Check the scope of delivery

Check the scope of delivery for completeness and flawless quality.

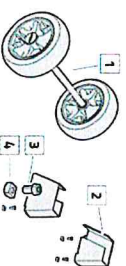
In case of defective parts or damage, please contact the supplier.

The scope of delivery consists of:



- 1 ecoPowerTrolley
- 2 Charging cable 230 V
- 3 Quick Start Guide (also for download, see QR code on the Quick Start Guide)
- 4 2 x housing screw
(Replacement for eye bolts)
- 5 2 x eyelet bolts (attachment points for lifting gear)

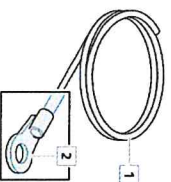
In the version with wheels and feet additionally:



- 1 Axle with wheels
- 2 2 x feet
- 3 4 x screws
- 4 4 x square nuts

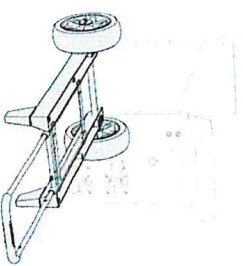
Procure the necessary accessories

If external grounding is required for safe operation of the device:



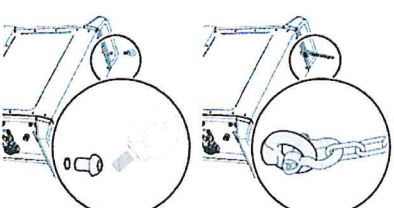
- 1 Grounding cable
- 2 Ring terminal

Procure the recommended accessories



Chassis with pull-out handle.
Allows easy movement of the device.

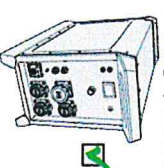
Transporting the device with the hoist



- The device is equipped with two eyebolts at the factory.
- Use the eyebolts as anchor points for transport with lifting gear.

- After transport:
- Replace the eyebolts with the housing screws (part of the scope of delivery).
 - Keep the eyebolts for future transport.

Setting up the device



Place the device in a horizontal position.



Do not place the device on its side.



Do not place the device in an upright position.



Do not place the device upside down.

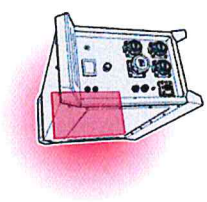
6 Transport and set up the device

Requirements for the transport route and the installation location

Make sure that the following requirements are met:

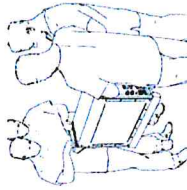
- The floor is load-bearing, as level as possible and free of obstacles.
- The environmental conditions at the installation site correspond to the technical data.
- All operating elements and connections are freely accessible at the installation site.

Special requirement for the installation site during operation (discharging):



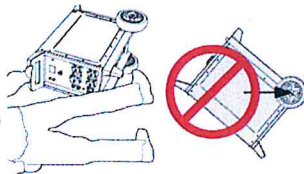
SAFETY INSTRUCTION
Hot cooling fins in operation during discharging. Danger of heat accumulation. Keep a minimum distance of 20 cm from people, objects and walls all around.

Wear the device



Device with runners:
Carry the device by the carrying handles in groups of four people.

Moving the device



Device with wheels and feet:
Lift the device to move it.

SAFETY INSTRUCTION
The device is heavy. Danger of tipping if the center of gravity is exceeded. Lift the unit only as far as is necessary to move it.

5 Installing the wheels and feet

Note on the version with wheels and feet

If the unit was delivered in the variant with wheels and feet, the wheels and the feet must be mounted by the user.

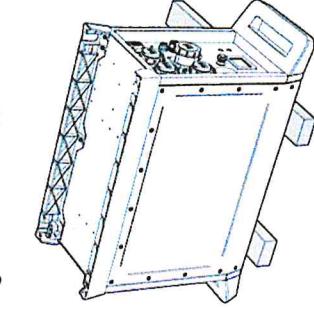
Preparation

For installation, the device may exceptionally be set upside down.

If the device was already in use before installation:

CAUTION
The cooling fins of the device are hot. Risk of burns when touching. • Turn off the connected loads. • Switch the device off. • Disconnect all cables from the device. • Allow the device to cool off completely.

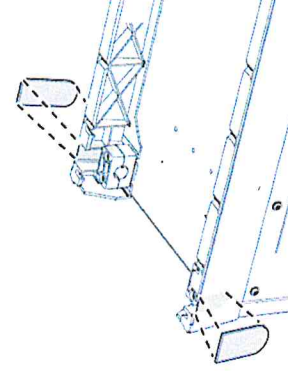
Installing the wheels and feet



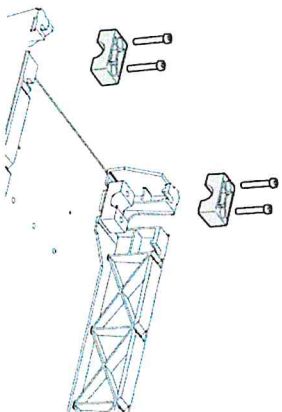
Setting up the device:

Prepare two squared timbers.
Place the device upside down on the squared timbers.

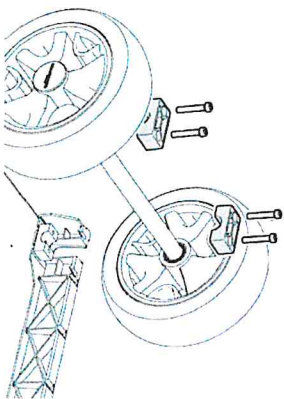
Installing the wheels:



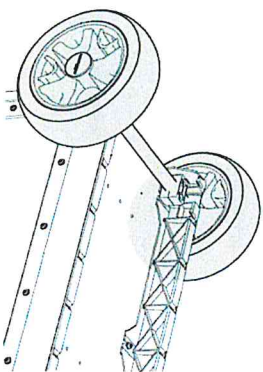
On the runners:
Break out the recesses for the axle.



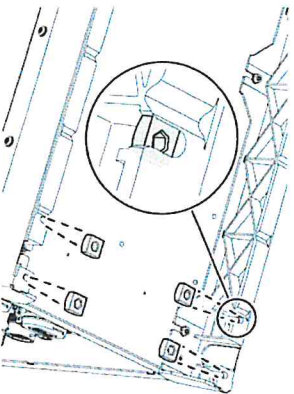
Unscrew the axle bearings.



Install the wheels.

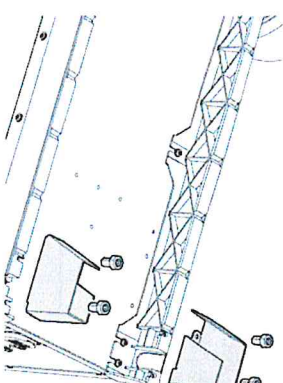


The wheels are installed.

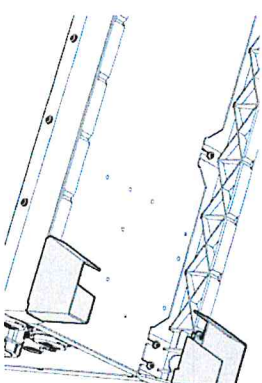


Insert the square nuts.

Installing the feet:

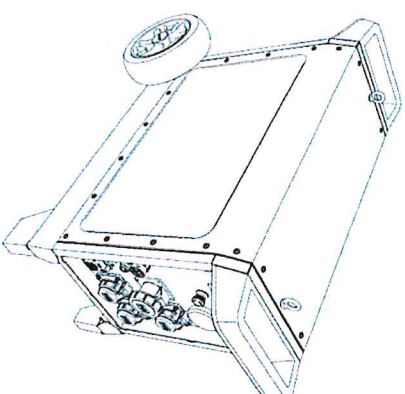


Install the feet.



The feet are installed.

Complete the installation:



Place the device in the correct position.