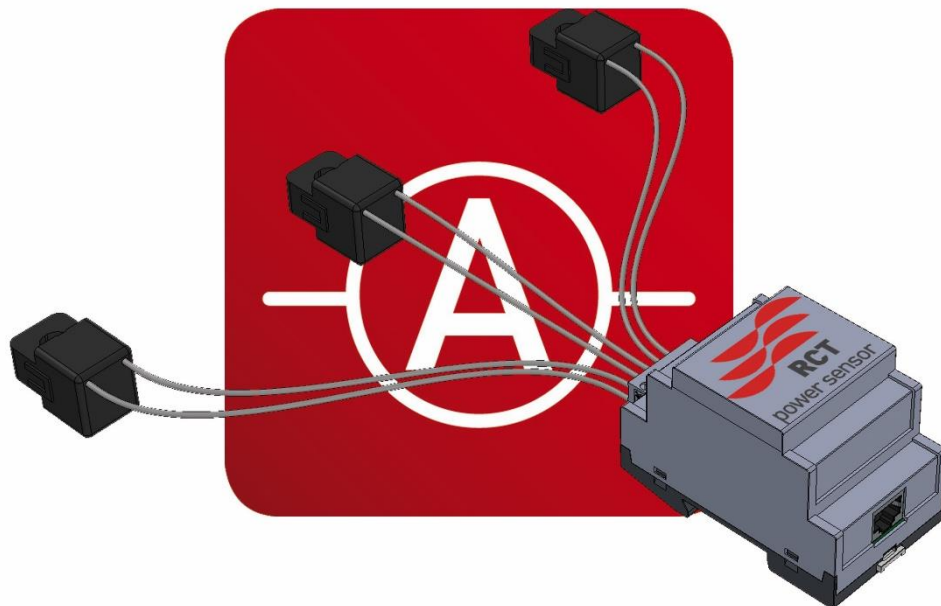


# MANUAL

## Power Sensor 50 / 100

EN



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## Foreword

Thank you for choosing a Power Sensor from RCT Power GmbH!

You have obtained an innovative and high quality product with unique features.

The Power Sensor 50 / 100 is highly flexible and robust, thus is fast and easy to use.

This device can bring more profit from your PV system.



Keep this manual in a convenient place for future reference.

## 1 About this document

### 1.1 Validity, purpose and scope of the document and legal provisions

This document is valid for Power Sensor 50 / 100.

Power Sensor 50 / 100 will be referred to as “current sensor”, “device” or “product” hereinafter unless specified otherwise.

This setup manual contains a general instruction required for installing, wiring, commissioning and operating the Power Sensor 50 / 100.

The contents of the manual will be periodically updated or revised due to product development.

The latest manual version can be accessed via [www.rct-power.com](http://www.rct-power.com).

RCT Power GmbH reserves the right to make changes to specifications or documents without prior notice.

RCT Power GmbH shall not be responsible for any damages resulting from use of this document.

This document does not replace any applicable laws, regulations, standards or codes.

Warranty conditions come enclosed with the device. No warranties can be derived from this document.

## 2 Safety instructions

### 2.1 Personnel and qualifications



**WARNING**

To prevent personal injury or material damage, the inverter and the Power Sensor must only be installed, wired, connected, commissioned, maintained and serviced by qualified personnel.

Qualified personnel eligible to perform the tasks described in this document have following skills and knowledge:

- They are trained in installing electrical devices.
- They have read and understood the documents shipped with the device.
- They know and use the appropriate tools and equipment to perform the work.
- They are familiar with all applicable laws, regulations, standards and codes for electrical devices.
- They are familiar with safety requirements and safety-related guidelines for electrical devices.
- They are familiar with national work protection laws and regulations.
- They know and use the appropriate personal protective equipment.

### 2.2 Safety precautions

The Power Sensor 50 / 100 has been designed and tested strictly according to the international safety regulations. All safety instructions related to the electrical and electronic device must be complied with during installation, operation and maintenance.



**NOTICE**

- All electrical installations must be made in accordance with local and national standards and regulations.
- Use only accessories and spare parts approved by the inverter manufacturer.
- Do not remove nameplate of Power Sensor.

## 3 Product introduction

### 3.1 Intended usage

The Power Sensor 50 / 100 is used to detect the grid power feed-in or grid power consumption, at the same time the household power is determined. The split core sensors allow easy use and installation without the separation of the current circuit.

To obtain maximum yield out of solar plant there's the possibility to configure a dynamic power reduction with the Power Sensor. You can use solar power that exceeds configured power reduction threshold for self-consumption by measuring real power feed in public grid (show Inverter Manual section 8.1.2).

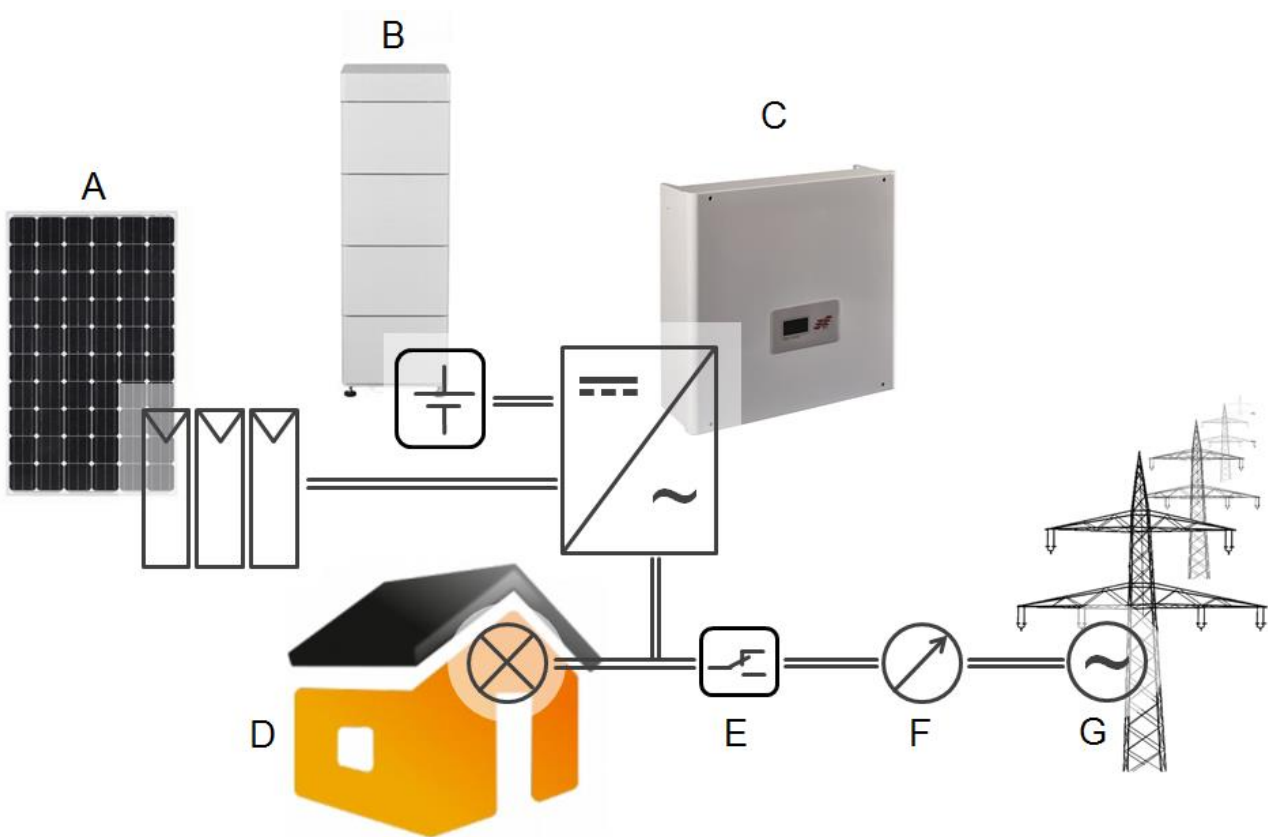
**Please note:**

The Power Sensor 50 / 100 is not designed for any other application or connection with other devices.

Any use that differs from or goes beyond the intended usage is considered misuse.

RCT Power GmbH shall not be liable for any damage resulting from misuse.

Any misuse will cause the termination of the warranty, guarantee and general liability of the manufacturer.



Item	Description	Note
A	PV strings	Monocrystalline silicon; polycrystalline silicon and thin-film without grounding and protection class II
B	Battery	Power Battery
C	Inverter	Power Storage
D	Household load	Household appliances
E	Power Switch	Switch Household to island mode during utility grid power outage
F	Power Sensor	Current sensors for power detecting
G	Utility grid	TT, TN-C, TN-S, TN-C-S

## 3.2 Product description

### 3.2.1 Scope of delivery

Before shipment our products are checked for proper condition.

Despite careful packaging, transport damage can occur, for which the transport company is generally responsible.

If you notice any damage to the packaging or the Power Sensor, please immediately inform the transport company.

## Power Sensor 50 / 100

Unpack box and check the content for completeness according to Fig. 3-2.1.

Inspect the Power Sensor unit for visible damages.

Contact your supplier if the delivery is incomplete or damaged.

Do not install, connect and operate the Power Sensor, if any damage was detected.

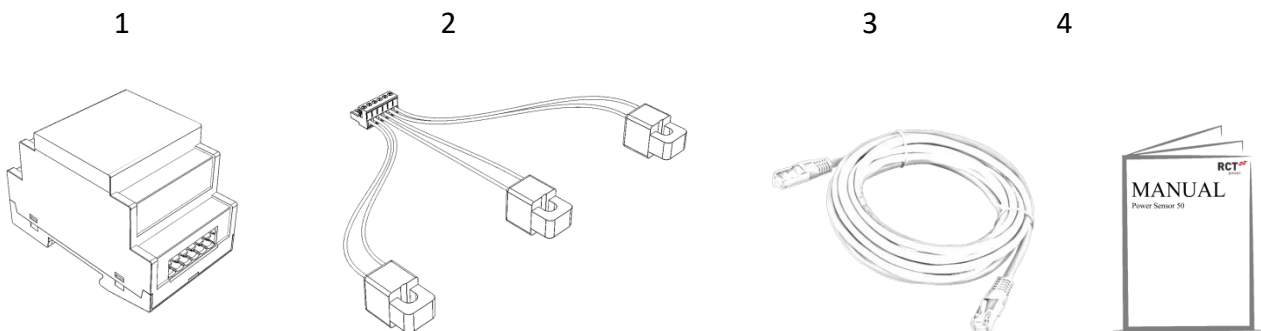
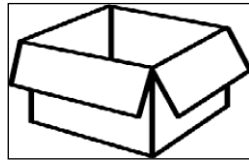
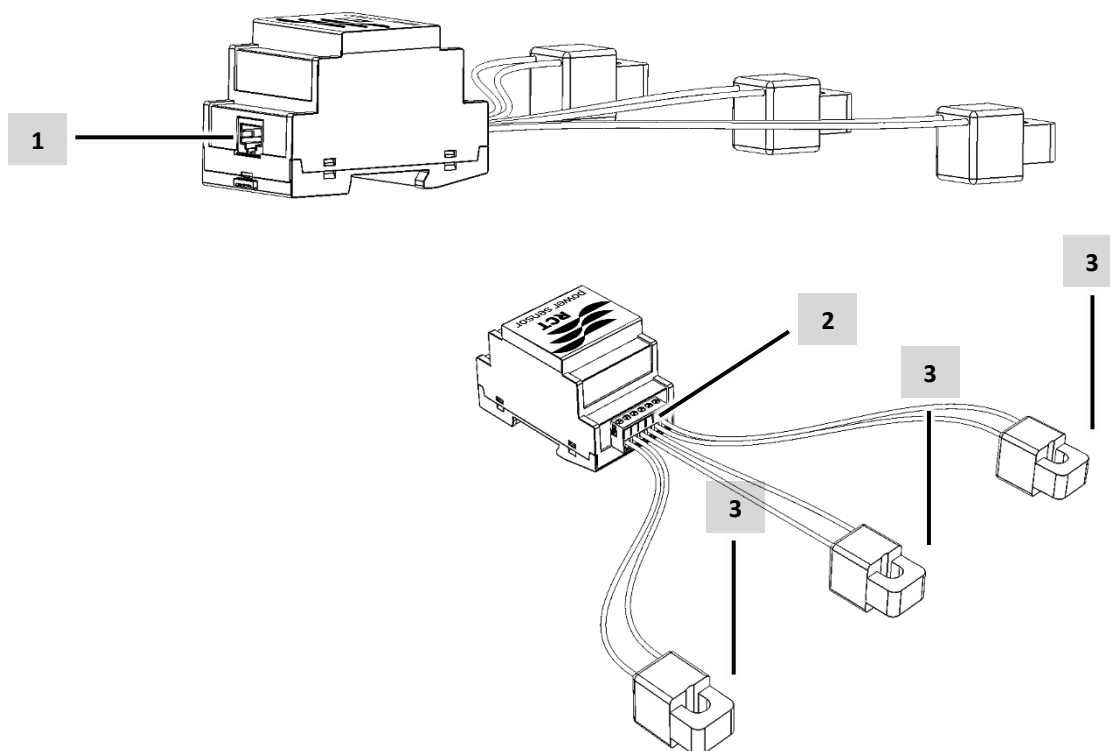


Fig. 3-2.1 Delivery contents of Power Sensor 50 / 100

Item	Description
1	1x Power Sensor unit
2	1x Split core with 3 sensors
3	1x Patch cable 10m
4	1x Manual Power Sensor

### 3.2.2 Product appearance

## Power Sensor 50 / 100



Item	Description
1	Current loop – interface, communication to the Power Storage.
2	Split core – interface.
3	Split core current sensors 50A[Power sensor 50], 200A[Power sensor 100]..

### 3.2.3 Name plate



Item	Description
1	Serial number
2	Technical data
3	Symbols



This symbol indicates that the user manual must be read and understood before putting the unit into operation.



## 4 Connection of Power Sensor

Following tasks to start the Power Sensor



- 4.1 Disconnecting from voltage
- 4.2 Power Sensor mounting
- 4.3 Split core sensors installation
- 4.4 Connection to Power Storage DC
- 4.5 Connection to Power Storage AC
- 4.6 Initiation and App configuration



**NOTICE**

The Power Sensor may only be used with the supplied communication cable or another Ethernet cable with the following properties (max. length: 30m, at least CAT 5 and at least AWG 22).

### 4.1 Disconnecting Power Storage from voltage



**DANGER**

Risk of death or serious injury due to electric shock!

When the inverter is connected to the utility grid (AC voltage source) and/or to a PV array which is exposed to sunlight (DC voltage source), high voltage is present within the inverter components which can cause fatal electric shocks.

- Any work which involves wiring, connecting or opening the inverter or the battery housing has to be performed by qualified personnel.
- Make sure other persons keep away from cables and inner inverter parts.



**WARNING**

Risk of death or serious injury due to electric arc!

When the inverter is connected to a PV array which is exposed to sunlight (DC voltage source), high voltage is present within the cables and inverter components which can cause electric arcs when DC plugs are disconnected under load.

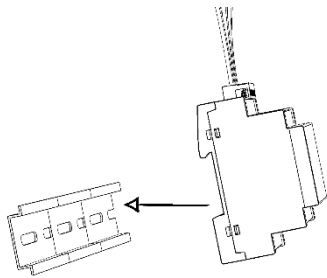
Electric arcs can cause fatal electric shocks or burns.

**Disconnection procedure:**

Step	Description
1	Locate DC switch of inverter and turn to "0" position [only Power Storage DC].
2	Locate ON/OFF switch of Battery and switch to "0" position.
3	Locate and switch off circuit breaker, main breaker or fuse for disconnecting inverter from utility grid.
4	Wait 10 minutes until capacitors have discharged and check the voltage.

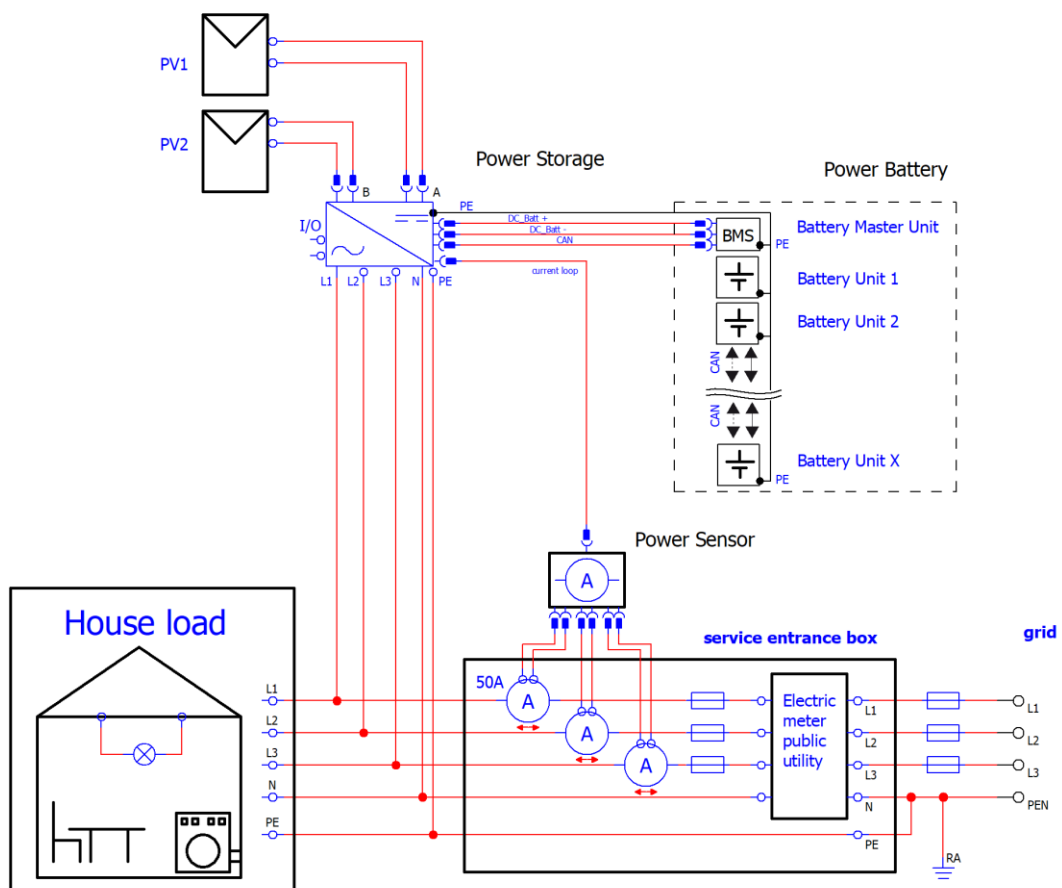
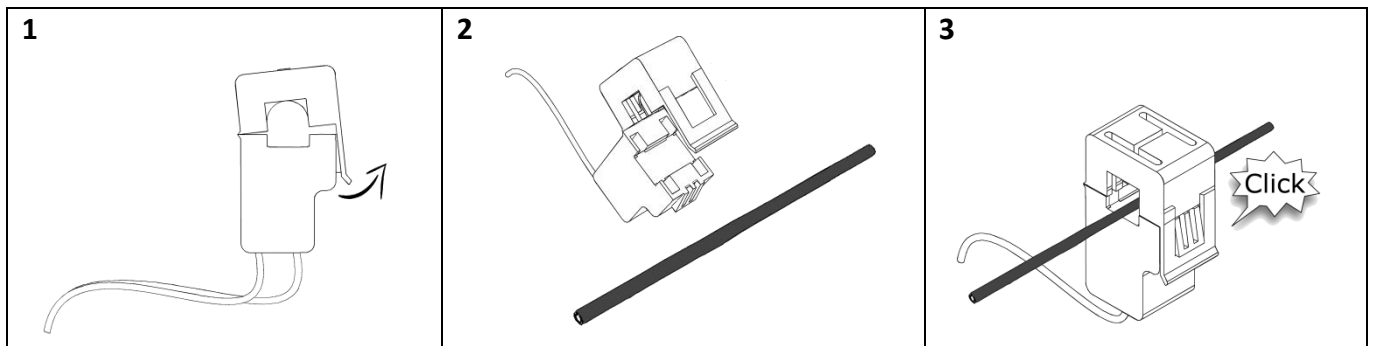
## 4.2 Power Sensor mounting

Place the Power Sensor on a top-hat rail in the service entrance box.



## 4.3 Split core sensors installation

Click the three current sensors around the L1, L2 and L3 wires in the service entrance box (the order and direction of the current sensors installation is not important).

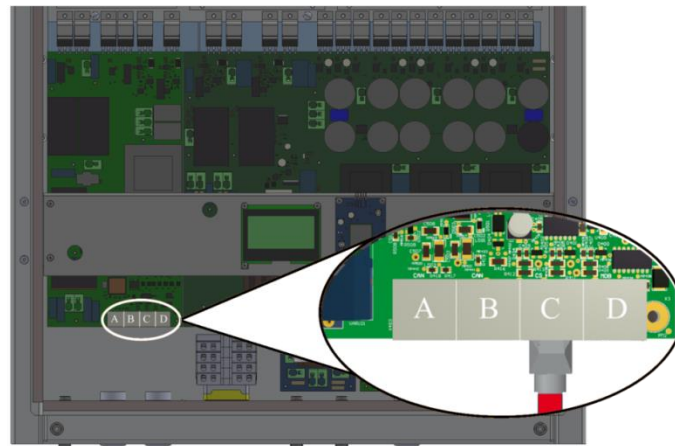


#### 4.4 Connection to Power Storage DC 4.0 – 6.0

Unscrew and remove cover of inverter.

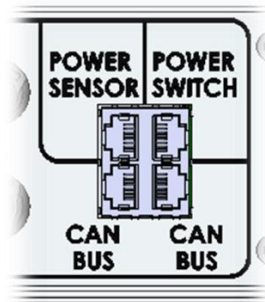
Open cable gland and feed cables through the holes next to the battery inputs.

Connect the Power Sensor to the interface “C” on BPM board of the Power Storage via patch cable, as shown:



At last close the cover of the inverter.

#### 4.5 Connection to Power Storage DC 8.0 – 10.0



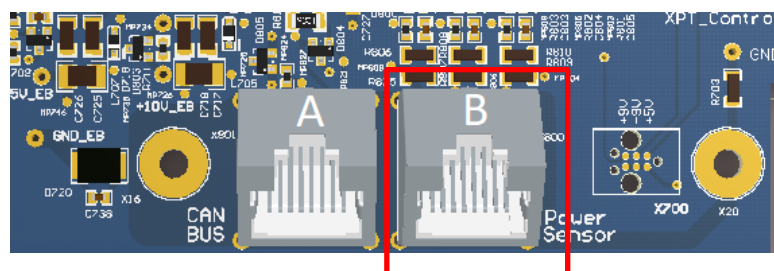
Connect the power sensor to the "Power Sensor" socket of the Power Storage DC 8.0 -10.0 using the patch cable as shown:

#### 4.6 Connection to Power Storage AC

Unscrew and remove cover of inverter.

Open cable gland and feed cables through the holes next to the battery inputs.

Connect the Power Sensor to the “B” of the Power Storage AC main board via patch cable, as shown:



At last close the cover of the inverter.

## 4.7 Initiation and App configuration

### Initiation procedure:

Step	Description
1	Locate DC switch of inverter and turn to "1" position [only Power Storage DC].
2	Locate ON/OFF switch of Battery and switch to "1" position .
3	Locate and switch on circuit breaker, main breaker or fuse for connecting inverter from utility grid.

**During initial commissioning, the sensor is automatically arranged and flashed after the battery has been selected. All you have to do is wait and see if the checkbox is ticked (see below)**

Should it be necessary to rearrange the power sensor for some reason (rewiring or similar), please proceed as follows:

### Sensor Configuration in operation mode:

Step	Description
1	Start „RCT Power App“ and connect to the device. <div data-bbox="932 770 1356 976" data-label="Image"> </div>
2	Continue with Device → Settings → Device settings (scroll down) → Power Sensor tuning (scroll down)
3	Remove the hook at „Current sensors are tuned“ <div data-bbox="845 1133 1449 1310" data-label="Image"> </div>
4	The device switches off briefly and attempts to rearrange the sensors. Once an arrangement has been made, the hook appears again at "current sensors are tuned" and the device restarts.
5	If current sensors are tuned and detected press "FLASH" to store settings permanent, Finish! <div data-bbox="845 1503 1449 1680" data-label="Image"> </div>

## 5 Troubleshooting

Possible errors that occur can be read out via the existing display or also the RCT Power App. A detailed list of errors and possible remedies can be found in the user manual. Remote access is also possible via the RCT portal. The software version of your unit is also shown on the display or in the RCT Power App.

## 6 Disconnect the system from the power supply

Always disconnect the system from the power supply before carrying out any work.

If you want to disconnect the unit from the power supply, please carry out at minimum steps 1-4 and 7.



Danger to life or serious injury from electric shock!

- Work involving wiring, connecting or opening the inverter enclosure must be carried out by qualified personnel.
- Ensure that other persons stay away from cables and internal components.

Step	description
1	Turn the DC load-break switch to "0" (See Fig. 1 b).
2	Switch the battery off via the ON/OFF switch on the master, to position "0".
3	Disconnect the inverter from the grid using the external circuit breaker or main switch.
4	Wait 10 minutes until the capacitors are discharged.
5	Disconnect the DC side (PV and battery): Remove the battery and DC connectors. Squeeze the connector latch and unplug the connector.
6	Disconnect the AC side: Remove the cover of the inverter. Look for the AC terminal block (see Fig. 5-1). Press down on the terminals with an insulated screwdriver to open the terminals. Pull out the cable ends L1, L2, L3, N and PE. Loosen the PG gland and carefully pull out the AC cable. <u>Alternative:</u> Secure the external circuit breaker against being switched on again.
7	Determine absence of voltage by measuring at the DC and AC terminal block

## 7 Disposal

Here you will find information on the proper disposal of electrical waste.

### 1 Separate collection of old appliances

Electrical and electronic equipment that has become waste is referred to as old equipment. Owners of WEEE must dispose of it separately from unsorted municipal waste. In particular, WEEE does not belong in household waste, but in special collection and return systems.

### 2 Options for the return of WEEE

Owners of old appliances from private households can return them free of charge to the collection points of the public waste management authorities.

### 3. data protection

Old appliances often contain sensitive personal data. In your own interest, please note that each end user is responsible for deleting the data on the waste equipment to be disposed of.

### 4 Meaning of the symbol "crossed-out dustbin"



*The symbol of a crossed-out dustbin regularly displayed on electrical and electronic equipment indicates that the respective device must be collected separately from unsorted municipal waste at the end of its service life. The appliance must not be added to household waste.*

## 8 Disclaimer

Although every care has been taken to ensure the accuracy and completeness of the information contained in this manual, no liability can be accepted for errors or omissions.

RCT Power GmbH reserves the right to change the hardware and software features described herein at any time without notice.

Warranty or liability claims of any kind are excluded by one or more of the following causes:

- Improper use or installation of the product
- Non-compliance with storage and transport conditions
- Damage in transit
- Operation of the unit outside the specified range
- Use of unsuitable tools, measuring equipment or protective equipment
- Installing or operating the product in an unsuitable environment
- Failure to observe relevant safety regulations at the place of use, during installation and commissioning
- Ignoring safety notices and instructions in all documents relevant to the product.
- Installing or operating the product under incorrect safety or protective conditions.
- By modifying the product or installing software without authorisation
- A defect in the product caused by operated or neighbouring equipment outside the permissible limits
- Damage due to force majeure

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RCT Power GmbH does not accept any guarantee for damage due to faulty or lost data, due to incorrect operation or malfunction of the inverter, the software, additional devices or PCs.

## 9 Technical Data

Power Sensor	50	100
Order Number	310-0001	310-0002
<b>GENERAL</b>		
Maximum current	3 x 50A	3 x 100A
Accuracy	1,5 %	
Dimensions evaluation unit (height x width x depth)	91 x 72 x 44 mm	
Dimensions current sensors (height x width x depth)	41 x 26 x 26 mm	67 x 51 x 41 mm
Current sensor cable length	1 m	
Max. cable diameter current sensor	10mm	24mm
IP degree of protection	IP 20	
Type of installation	DIN rail mounting / Split core	
Operating temperature range	+5°C ... +40°C	
<b>INTERFACE</b>		
Power Storage Interface	Current loop	



1/2022

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