block.eu

MANUAL

Visualization and configuration software

UPScontrol+

BLOCK Transformatoren-Elektronik GmbH
Max-Planck-Straße 36-46
27283 Verden • Germany

Phone +49 4231 678-0 • Fax +49 4231 678-177
info@block.eu • block.eu

TABLE OF CONTENTS

1. Order details

The following table shows the order data for the charging and control unit and the battery modules.

table 1: Order numbers

UPS-Systems			
Variant	**designation**	**Input-output voltage**	**Output current**
PCC-1024-050-2U	combi UPS	230 Vac / 24 Vdc	5 A
PCC-1024-100-2U	combi UPS	230 Vac / 24 Vdc	10 A
PC-0424-017-0	cap. UPS	24 Vdc / 24 Vdc	20 A (40 A mit PC-0424-115-0)
PC-0424-050-0	cap. UPS	24 Vdc / 24 Vdc	20 A
PCC-0524-100-0U	Charging and control unit	24 Vdc / 24 Vdc	10 A
PCC-0524-200-0U	Charging and control unit	24 Vdc / 24 Vdc	20 A
PC-0524-400-0	Charging and control unit	24 Vdc / 24 Vdc	40 A
BATTERY MODULE			
Variant	**Input voltage**	**Output current**	**rated capacity**
PVA 24/3,2Ah	24 Vdc	20 A	3,2 Ah
PVA 24/7Ah	24 Vdc	40 A	7 Ah
PVA 24/12Ah	24 Vdc	40 A	12 Ah
PVAF 24/0,8Ah	24 Vdc	5 A	0,8 Ah
PVAF 24/1,2Ah	24 Vdc	7,5 A	1,2 Ah
PVAF 24/7Ah	24 Vdc	40 A	7 Ah
PVAF 24/12Ah	24 Vdc	40 A	12 Ah
PST-0124-032-10	24 Vdc	20 A	3,2 Ah
PST-0124-070-00	24 Vdc	40 A	7 Ah
PST-0124-070-10	24 Vdc	40 A	7 Ah
PST-0124-120-00	24 Vdc	40 A	12 Ah
PST-0124-120-10	24 Vdc	40 A	12 Ah
PST-0124-180-00	24 Vdc	40 A	18 Ah
PST-0124-400-00	24 Vdc	40 A	40 Ah

UPS-Control Software

Visualization and configuration software for the charging and control unit. Free download at www.block.euFor displaying and individually adjusting the charging and control unit.

2. General information

2.1 Safety instructions

Please read these warnings and safety instructions carefully before operating the device. The device may only be installed by competent and qualified personnel. In the event of malfunctions or damage, immediately switch off the power supply and send the device to BLOCK Transformatoren-Elektronik GmbH for inspection. The device does not contain any serviceable parts. If an internal fuse trips, there is most likely an internal defect in the device. The data provided is for product description purposes only and is not to be construed as guaranteed characteristics in the legal sense.

2.2 Qualified Personnel

The product associated with this documentation may only be handled by qualified personnel in accordance with the documentation associated with the respective task, in particular the safety and warning instructions contained therein. Qualified personnel can ensure, based on their training and experience, that the use of the product described complies with all safety requirements and applicable regulations, standards, and laws.

2.3 Intended use

This device is designed for installation in an enclosure and is suitable for use in general electronic equipment, such as industrial control systems, office equipment, communication equipment, or measuring equipment. Do not use this device in control systems for aircraft, trains, or nuclear facilities where a malfunction could result in serious injury or death.

2.4 Disclaimer

This device is designed for installation in an enclosure and is suitable for use in general electronic equipment, such as industrial controls, office equipment, communication equipment, or measuring equipment. Do not use this device in control systems for aircraft, trains, or nuclear facilities where a malfunction could result in serious injury or death.

ATTENTION
Switch off the input voltage before installation, maintenance, or modification work and secure it against unintentional restarting.

ATTENTION
Do not make any changes or attempt to repair the device. Do not open the device!

ATTENTION
Prevent foreign objects such as paper clips and metal parts from entering the device.

ATTENTION
Do not operate the device in a damp environment or in an environment where Condensation or dew formation is to be expected.

ATTENTION
Do not touch the housing during operation or shortly after switching off. Hot surfaces can cause injuries.

3. Function overview

The UPS Control software is a configuration and management software for all BLOCK UPS systems.

This software allows you to comprehensively configure, parameterize, and manage your UPS systems. It also enables continuous monitoring of all relevant operating and status data and displays this information clearly.

Thanks to the integrated communication interfaces, a reliable connection to the respective systems is guaranteed. The function for easy transfer and transmission of configurations significantly reduces commissioning effort. At the same time, central monitoring and management minimize both maintenance and service costs in the long term.

The UPS Control software offers the following features:

- Graphical overview of all important information, such as voltages, currents, charge states of energy storage devices, etc.
- Setting customer-specific parameters
- Configuration of signal outputs
- Exporting and importing finished configurations
- Configuring the shutdown and restart behavior of an industrial PC
- Individual adjustment of overload behavior
- Starting external software in the event of an incident
- Notification by E-Mail in freely configurable event cases
- Logging of events with memory and export function.
- Language setting for the user interface (currently: German / English)

4. Installation

Before using the UPS Control software, it must be installed on a computer.
The installation file is available for download on the BLOCK homepage. You can find the software both in the download area for the respective product and in the general software area.

The following steps are required for installation:

1. Download the Software_UPS_Control_x_x_x.zip from the Block homepage.
   https://www.block.eu/de_DE/service/downloads/software/
2. Unzip the Software_UPS_Control_x_x_x.zip file to the desired location.
3. To install successfully, run the software setup_block_XXX.exe as an administrator.
4. Perform the installation correctly according to the installation instructions.
5. Connect the selected UPS to the computer via USB cable and install the drivers (FTDI chip).
6. Get to know the software and make the necessary settings.

4.1 system requirements

Minimum system requirements:

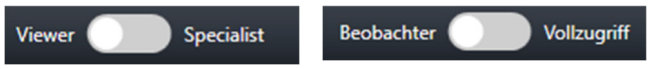
Components	prerequisites
operating system	Win 11
working memory	8,00 GB
Free hard disk space	500,00 MB
processor	1 GHz
screen resolution	800 Px x 600 Px

Recommended system requirements:

Components	prerequisites
operating system	Win 11
working memory	16,00 GB
Free hard disk space	1,00 GB
processor	2 GHz
screen resolution	1920 Px x 1080 Px

5. User interface

5.1 Viewer mode



Viewer mode is used exclusively to display the current device status and the set parameters.

In this mode, no changes can be made to the software or connected devices. Editing or parameterization is not permitted.

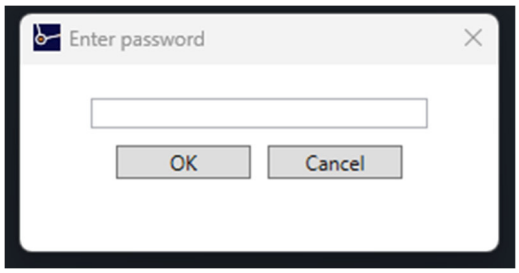
Viewer mode can be activated via the "Software Setting" tab in the top right corner. The password for activation is: **block**

5.2 Specialist Modus

Specialist mode ("Full Access") allows unrestricted access to all settings of the software and the connected UPS systems.

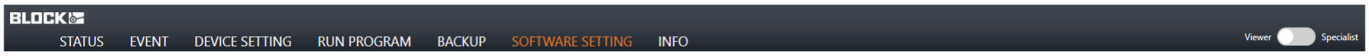
In this mode, all parameters can be changed and configurations adjusted. In addition, the current device status and the set parameters can be displayed in full.

Specialist mode can be activated via the "Software Setting" tab in the top right corner. The password to activate it is: **block**

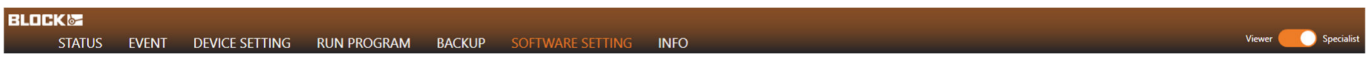


After entering the password, confirm with **OK**. Once the mode has been changed, the interface will turn gray for Viewer mode or orange for Specialist mode.

Viewer Mode:



Specialist Mode:



5.2.1 Change password

The default password when the device is delivered or in the factory settings is:
block

To change the password, first switch modes. In the password window that opens, enter the command to change the password, followed by the new password. The new password must be entered twice.

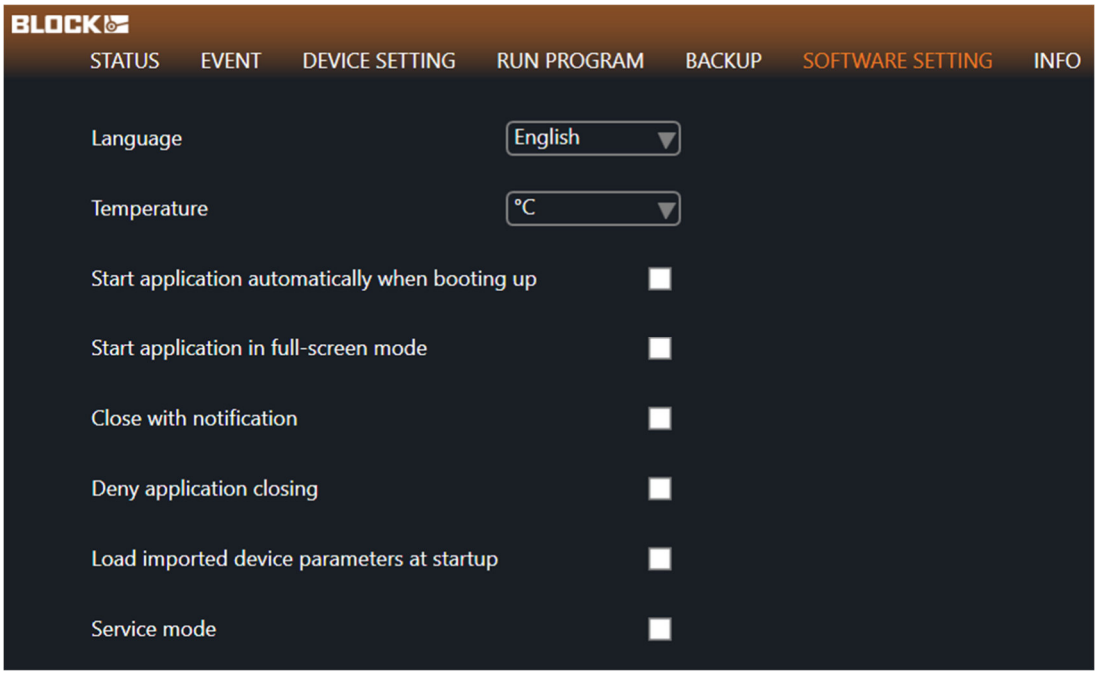
Syntax: reset <newPassword> <newPassword>

Example:
If the password is to be changed from ***block*** to ***block123***, the following entry is required in the password window:
reset block123 block123

The password has now been changed and is now: **block123**

5.3 system settings

Adjustments to the system settings can be made in the "Software settings" tab.



The following settings are available:

- Language settings for the software (German, English))
- Temperature unit (Celsius, Fahrenheit)
- Enable automatic startup of the software when the computer boots up
    - This may take a few minutes, depending on your computer!
- Start the application in maximize or minimize mode (in the background).
- Display a message when exiting to prevent accidental closure of the application.
- Refuse to close the application
- Automatically load device parameters at startup
- Service Mode **(only in Specialist Mode)**
    - With the service mode set, you can also configure a UPS offline away from the affected device. This mode allows you to configure the desired settings in the office and then export them as a file. The exported file can then be made available to the customer technician and installed on the UPS on site.

Information about the software, the current software version, and the contact details of BLOCK Transformatoren-Elektronik GmbH can be found under the "Info" tab.

5.4 12 Volt Modus

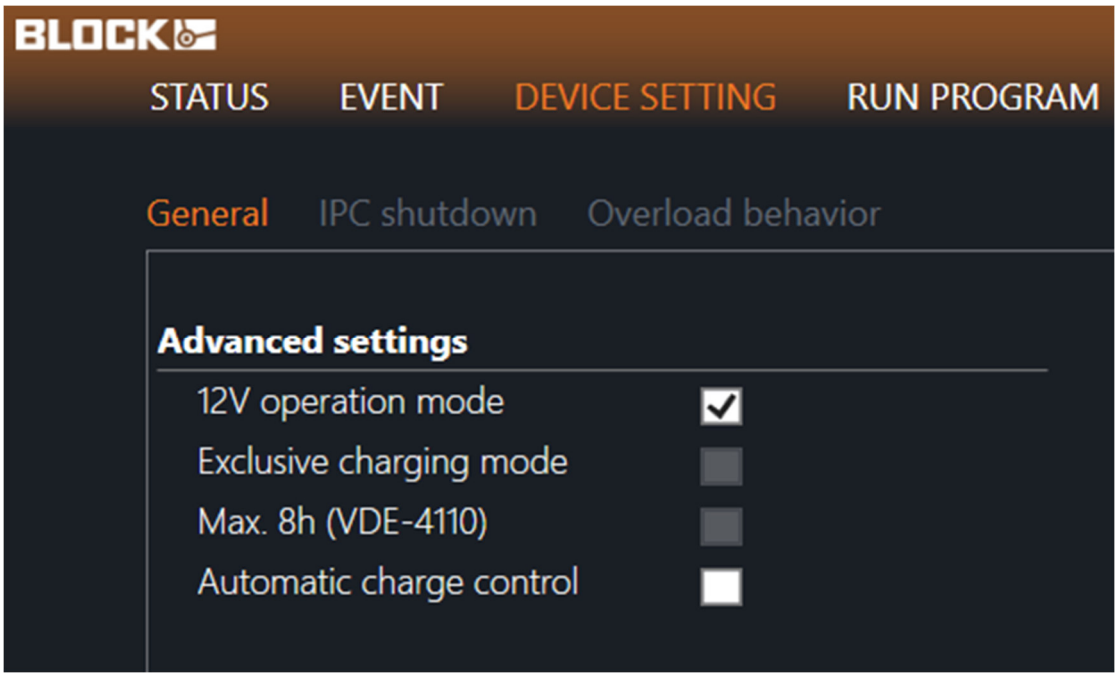
With the PC-0524-400-0, you can switch between 24V (factory settings) and 12V mode. This provides maximum flexibility in your system.

To switch from 24V to 12V, follow these steps:

1. Connect the PC-0524-400-0 to 24V and start operation.
2. Switch on 12V mode in the software (Device settings – General – Advanced settings)
3. Disconnect the UPS from the mains and switch it off.
4. Then start up the UPS with 12V – 12V mode is now activated.

To switch from 12V to 24V, follow these steps:

1. Connect the PC-0524-400-0 to 12V and start operation.
2. Deactivate 12V mode in the software (Device settings – General – Advanced settings)
3. Disconnect the UPS from the mains and switch it off.
4. Then start up the UPS with 24V – now the 24V mode is reactivated (factory setting).



5.5 Service Mode

Service mode is used to configure a UPS in offline mode and to perform updates as part of troubleshooting measures (see Chapter 6.3).

After activating service mode, you can select which device is to be configured offline in the device list at the bottom left of the status page. To do this, click on **"Select Device"** and select the appropriate UPS from the drop-down menu.

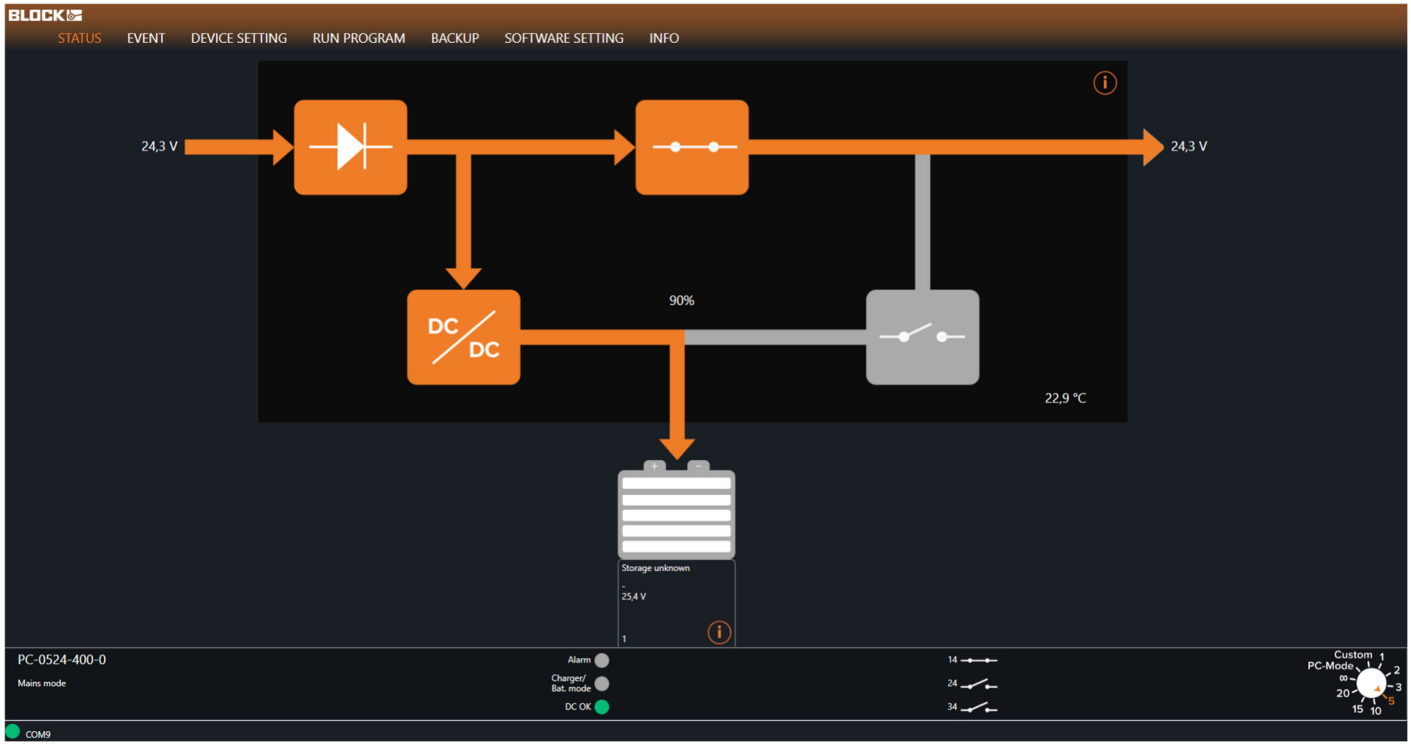
After selecting the desired UPS, the necessary settings can be made and saved.

The saved configuration can then be exported from the software and stored locally on the PC.

This file can be imported into the corresponding UPS at a later date on site.

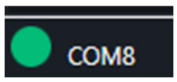
5.6 Start / Status bar

After successfully establishing a connection to the UPS used, it appears on the start page.

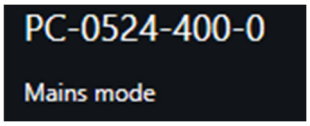


The status bar contains basic status information about the UPS.

- Connection to the device
  - LED green: Active connection to the UPS exists
  - LED yellow flashing: connection establishment
  - COM-Port: Selected communication sport



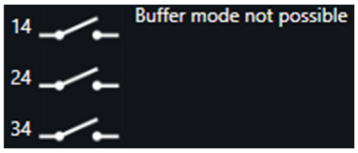
- Item number and condition
  - Mains operation: UPS is in mains operation
  - Battery operation: UPS is in batter operation
  - Offline: No connection to the selected UPS



- UPS status LEDs
  - Red Alarm
  - Yellow Charge/Battery Mode
  - Green DC OK

More detailed information on the signals can be found in the operating instructions or manuals for the respective UPS.

- Signal contacts
  - Closed without signal
  - Open without signal
  - Closed with signal
  - Open with signal

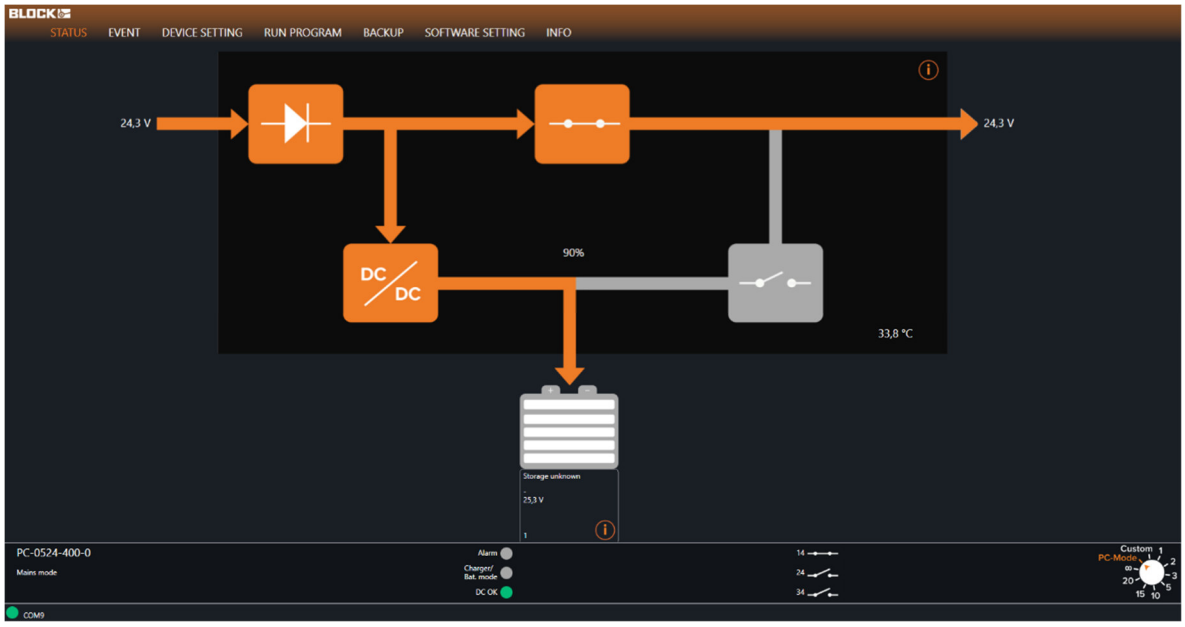


- Position of the selector switch on the UPS
  - Custom: UPS Control parameters
  - PC-Mode: Enable IPC Mode
  - 1-∞: Buffer duration in minutes

More detailed information on the selector switch configurations can be found in the operating instructions or manuals for the respective UPS.
Please note: Not included with all models.

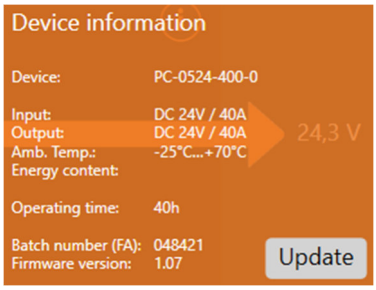
5.7 Status

The "Status" tab provides a graphical overview of all important information:

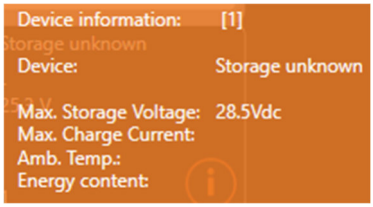


The following live information is now available:

- Applied input voltage of the UPS
- Current output voltage and output current of the UPS
- General information about the UPS:
  By clicking on the information icon, you can find current device information about the UPS used:
  - Device name
  - Input data (voltage/current)
  - Output data (voltage/current)
  - Temperature range
  - Operating time (in hours)
  - The FA Number
  - The current firmware version
    - For firmware updates, see Chapter 6.



- All connected memory modules with information about the internal temperature and charge status.
  By clicking on the information icon, you can find current device information about connected memory modules:
  - Device name
  - Voltage
  - Temperature range
  - Storage capacity
  - Operating time

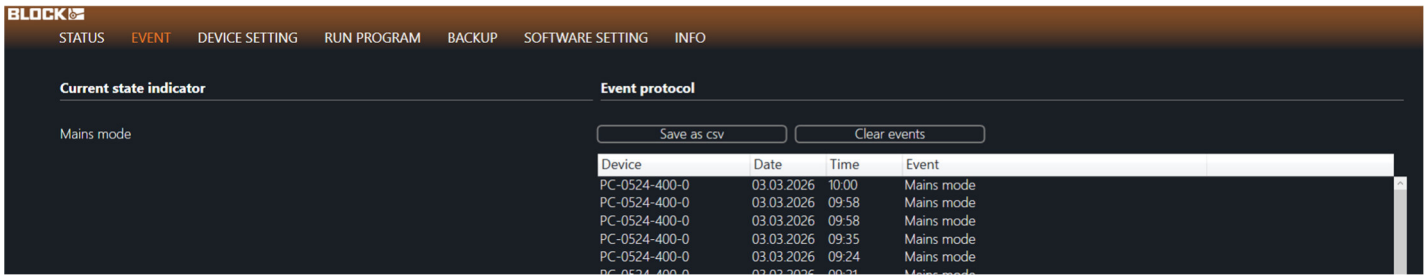


This device information is only available in conjunction with compatible memory modules with communication lines.

- Charging voltage and charging current of the storage modules.
- Normal operation or buffer operation.

5.8 Event

The "Event" tab provides an overview of all UPS statuses.:



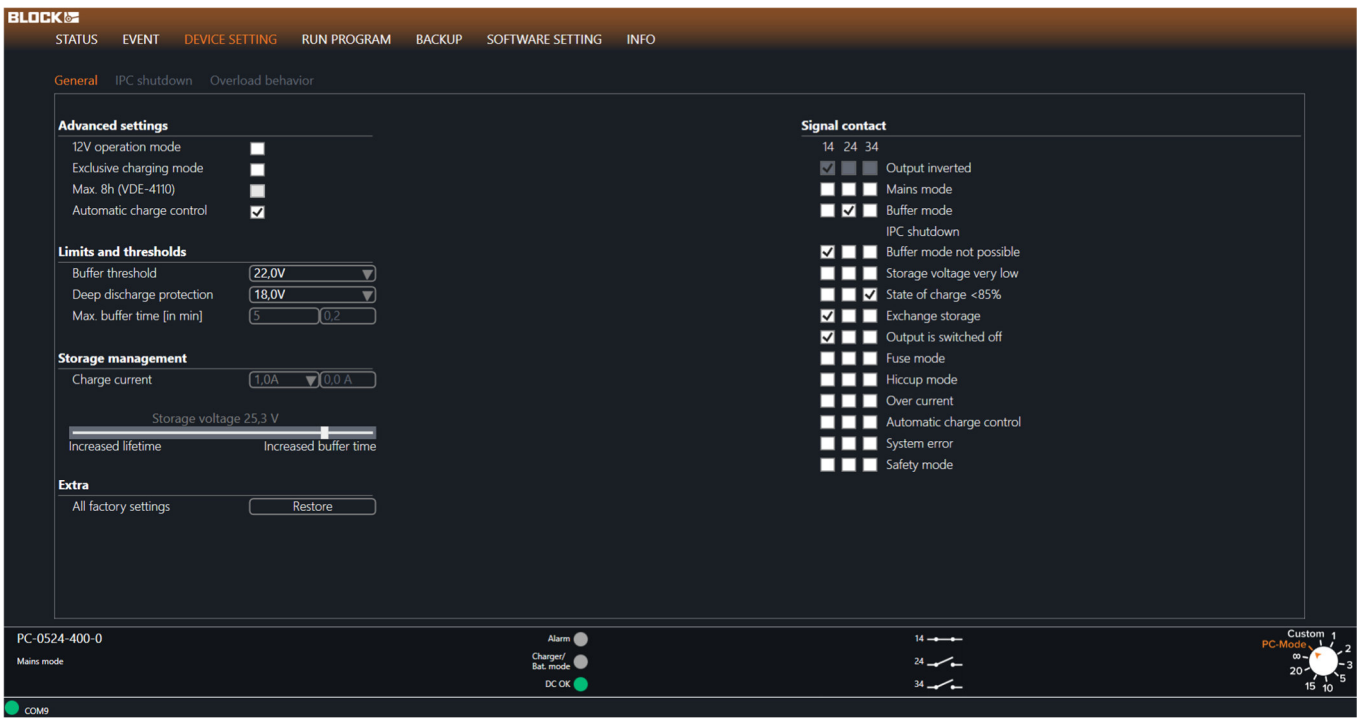
The **"Current Status"** section allows real-time monitoring of all UPS messages.
Status changes are automatically recorded in the event log. Each change is documented with the device name, date, and timestamp.

The events are sorted chronologically, with the most recent event displayed at the top.

The event log can be exported as a CSV file using the **"Save as CSV"** button. The log can be reset using the **"Delete events"** button.

5.9 General parameters

The "Device settings" tab offers a whole range of configuration options..



The following configuration options are available:
Configuration options may vary depending on the UPS.

Advanced settings:

- 12 V operation
  - The UPS is switched to 12 V operation.
- Exclusive charging mode
  - The UPS is optimized for charging the energy storage devices. This eliminates the need to supply the loads.
  - Max. 8h (VDE-4110)
- Automatic load control

Limits and thresholds:

- Buffer threshold (adjustable 10,5 V -28 V)
  - Setting the voltage threshold for switching from mains operation to buffer operation
- Max. buffert time / User-defined buffer time (in seconds/in minutes)
- The ACTUAL and TARGET values are displayed.
  - Left – TARGET
  - Right - ACTUAL

Memory management/battery management:

- Final charging voltage per cell (adjustable 2,0 V - 2,8 V)

The final charging voltage setting affects the service life of the built-in ultra capacitors and the maximum buffer time of the device. Only for capacative UPS systems.

- Charging current (adjustable 0,2 A – 5 A)
  - Setting the maximum charging current
  - Overview of the current flowing

In conjunction with intelligent battery modules, the macimum permissible charging current iss et automatically.

- Charge termination voltage (adjustable 26 V – 29,4 V)
  - Setting the maximum charge voltage
  - Overview of the current voltage
- Deep discharge protection (adjustable 18V – 20 V)
  - Maximum discharge threshold of the storage module
- Automatic charge control
  - Charge termination voltage and charge current
  - Battery temperature monit
- *Only possible in conjunction with a temperature measurement device in the battery (communicative battery – BLOCK)*
- The actual and target values are displayed
  - Left – TARGET
  - Right – ACTUAL

Signalkontakte:

Up to 3 signal contacts are available per device for free configuration. The default state of the signal contacts is open (LOW). If a selected parameter applies, the signal contact closes (HIGH). By checking the box next to "Output Inverted," the behavior of the signal outputs is inverted (LOW -> HIGH; HIGH -> LOW).

The following information can be signaled:

- Mains operation
  - The device is powered by the mains power supply. The voltage is switched through.
- Buffer operation
  - The device supplies the load from the memory only.
- Input voltage error
  - Input voltage deviates from the input voltage range >30 V or < buffer threshold.
- Input voltage very low
  - The input voltage has fallen below the set threshold value
- Output voltage very low
  - The output voltage has fallen below the set threshold
- No buffer operation possible
  - Buffer operation is not possible because no battery voltage was measured or the EMERGENCY STOP bridge for remote shutdown is interrupted.
- Battery voltage very low / memory voltage very low
  - The connected memory is about to be discharged or deep discharge protection is about tob e activated.
- Charge level < 85 %
  - The charge level of the connected memory module has fallen below 85%.
- Battery replacement recommended / memory end of life reached
  - The connected memory module has reached the end oh his service life. The capacity no longer corresponds to the delivery state, which can lead to shorter buffer times and thus to premature buffer failure. It is recommended to replace it.
- Output is switched off
  - The output has been switched off due to a safety shutdown or an overcurrent.
- Fuse-Mode
  - The UPS is in fuse mode due to an overcurrent. (Output will not start up within 5 seconds. Output remains switched off, manual reset possible in the „Parameters“ tab in the „Overload behavior“ section).
- Hiccup-Mode
  - The UPS is in hiccup mode due to an overcurrent. (Three start-up attempts at 20-second intervals, repeated every 5 minutes).
- Overcurrent / output current too high
  - There is an overcurrent at the Output.

- Constant current
  - The UPS supplies the load with a constant current due to an overload.
- System error
  - The internal self-test has failed.
- Safety shutdown
  - The output has been shut down due to under/overvoltage.

Changes to the parameter settings are saved directly on the UPS after selection. It is not necessary to save these settings manually.

5.10 Start UPS Control as a Service

The **UPS Control Software** is automatically set up as a system service during installation. This service ensures that the IPC is shut down safely in the event of a power failure.

When the computer starts up, the service is automatically launched in the background. As long as the **UPS Control Software** is actively open, the software takes over control and the service becomes inactive.
When the software is closed, the service remains active in the background. This ensures that the computer is shut down safely in the event of a power failure, even if the software is not open.

After power is restored and the computer restarts, the service will automatically restart.

If no one logs on to the computer after restarting, or if the software is closed and there is another power failure, the IPC will automatically and safely shut down after a delay of **1 second**.

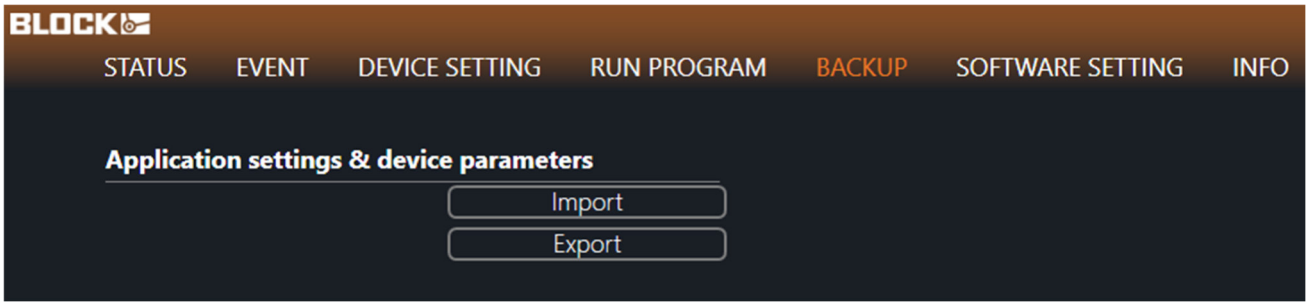
5.11 Importing and exporting parameters

The UPS Control software offers the option of making stored parameters available for other devices. The import and export function allows parameters that have already been configured to be transferred easily, securely, and efficiently to additional UPS systems.
This reduces the time required for recurring configurations and minimizes the risk of input errors.
Before exporting the settings, all necessary parameters must be fully configured and checked.

To export the settings, go to the **"Backup"** section and click on **"Export"**. You can then save the configuration file on your computer.

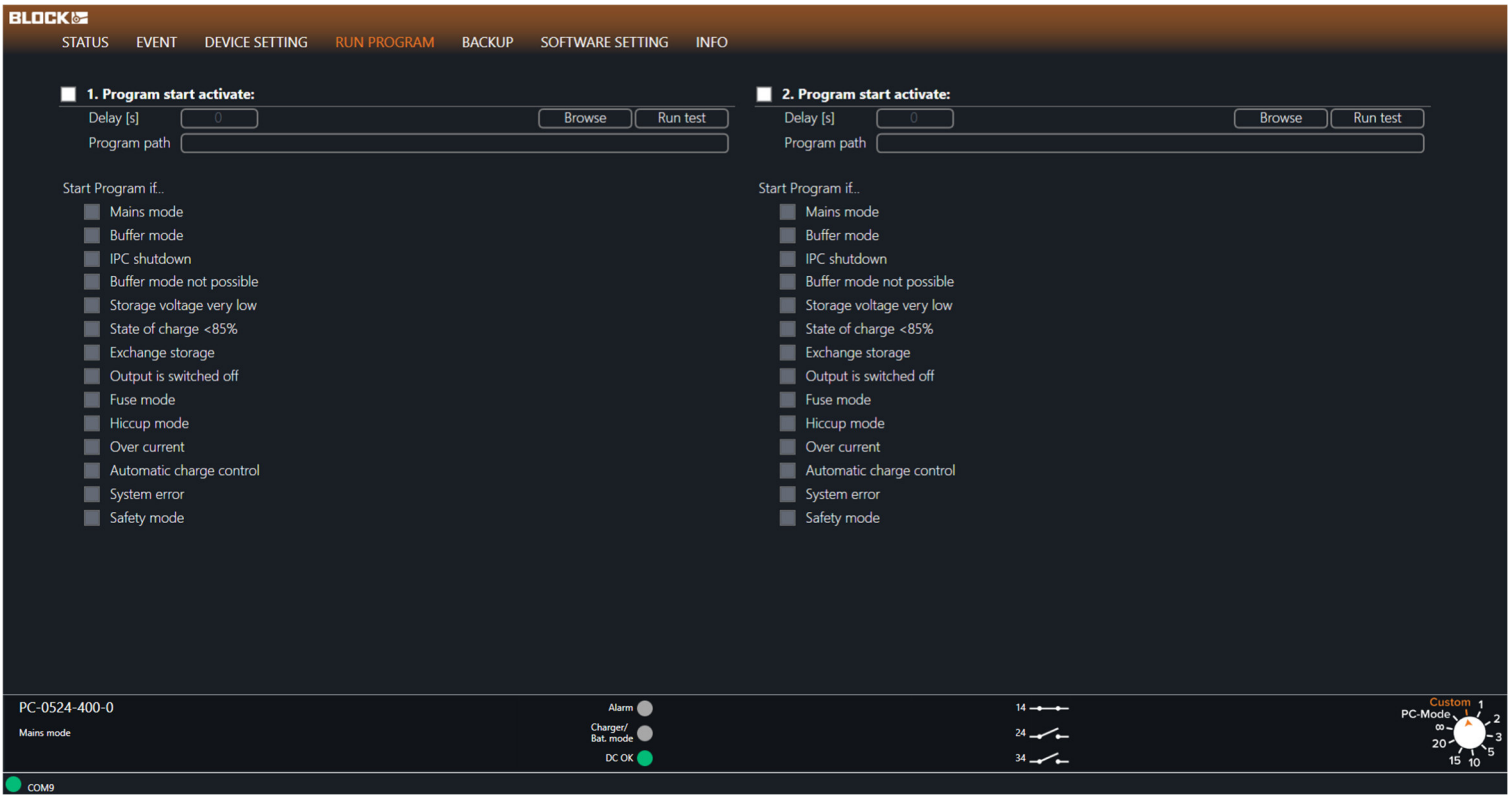
To import the settings, go to the **"Backup"** section and click on **"Import"**.

Select the appropriate file from your computer to load the saved parameters into the program and transfer them to the desired UPS.



5.12 External program start

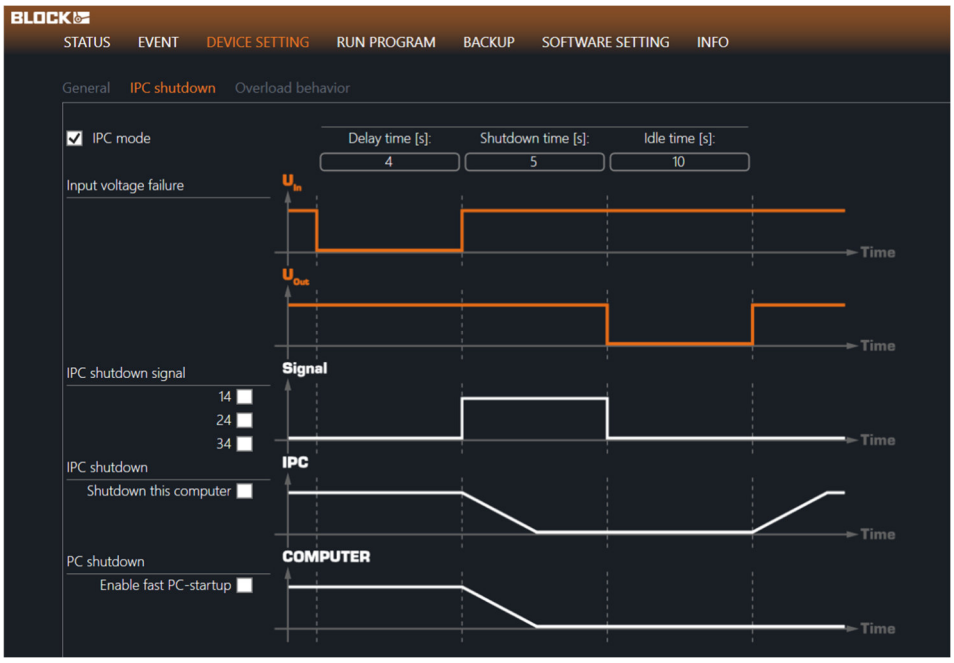
External program launches can be configured in the **"Program"** section.
To do this, select the desired condition that should trigger the program start under **"Run program when ..."**. An optional delay can be defined in hours, minutes, and seconds.
Use the **"Browse"** button to select the program to be executed.
The **"Run test"** button can be used to check the configured external program start.



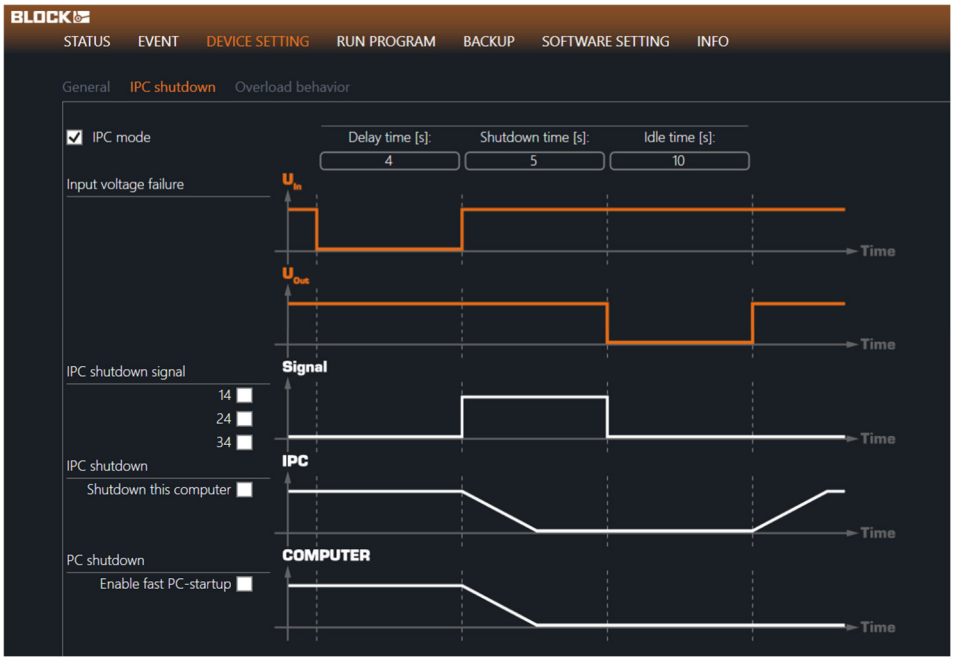
The set parameters are saved immediately after clicking; no manual saving is required.

5.13 Shut down PC / IPC mode

In order to ensure that the connected PC is shut down safely in the event of a power failure, the connected PC is shut down in buffer mode after the defined delay time.



To activate IPC mode, the rotary switch on the charging and control unit must be set to be set to PC mode. Only then will the IPC configuration appear in UPS Control.
Software.
The signal to shut down the IPC must be selected using the potential-free signal contacts under "IPS signal for shutdown."



In IPC mode, the UPS module operates according to a sequence of events designed to ensure the controlled shutdown and reliable restart of an IPC. The sequence of "delay time," "shutdown time," and "waiting time" must be defined for each case. The ability to shut down the output despite a return to mains power during buffer operation ensures that an IPC can be reliably restarted after shutdown.

5.14 overload behavior

In the **"Overload behavior"** section, you can configure the behavior of the UPS in the event of an overload.
The **Hiccup mode** is activated in the delivery state. In this mode, the output cannot be restarted within 5 seconds in the event of a short circuit or a sustained overload.
Three automatic start attempts are made, each with a waiting time of 20 seconds.
If no successful restart has been achieved after these three attempts, a 5-minute pause is taken before the next restart attempt.

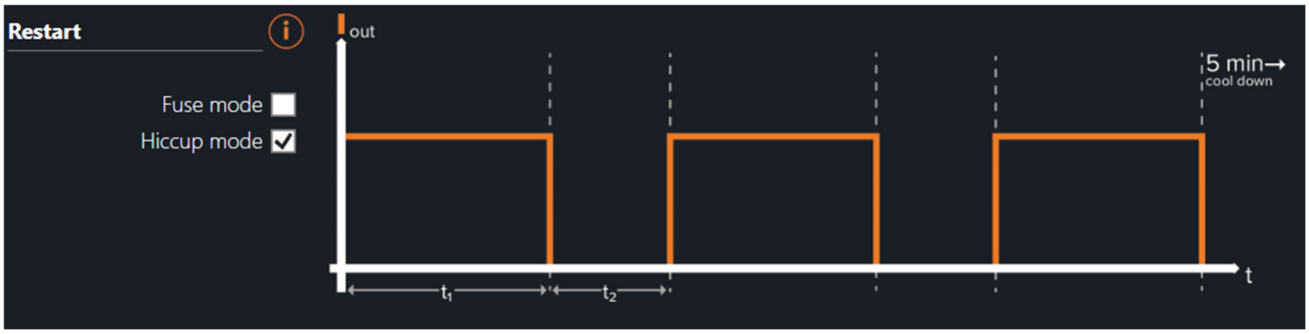
The power boost/top boost option enables the charging and control unit to supply increased loads for a short time in the event of an overload.

PowerBoost: max. 65A for max. 10 seconds
TopBoost: >65 A for max. 55 ms

Only in conjunction with high-performance battery modules.

The power boost in mains operation must be supported by the upstream power supply unit.

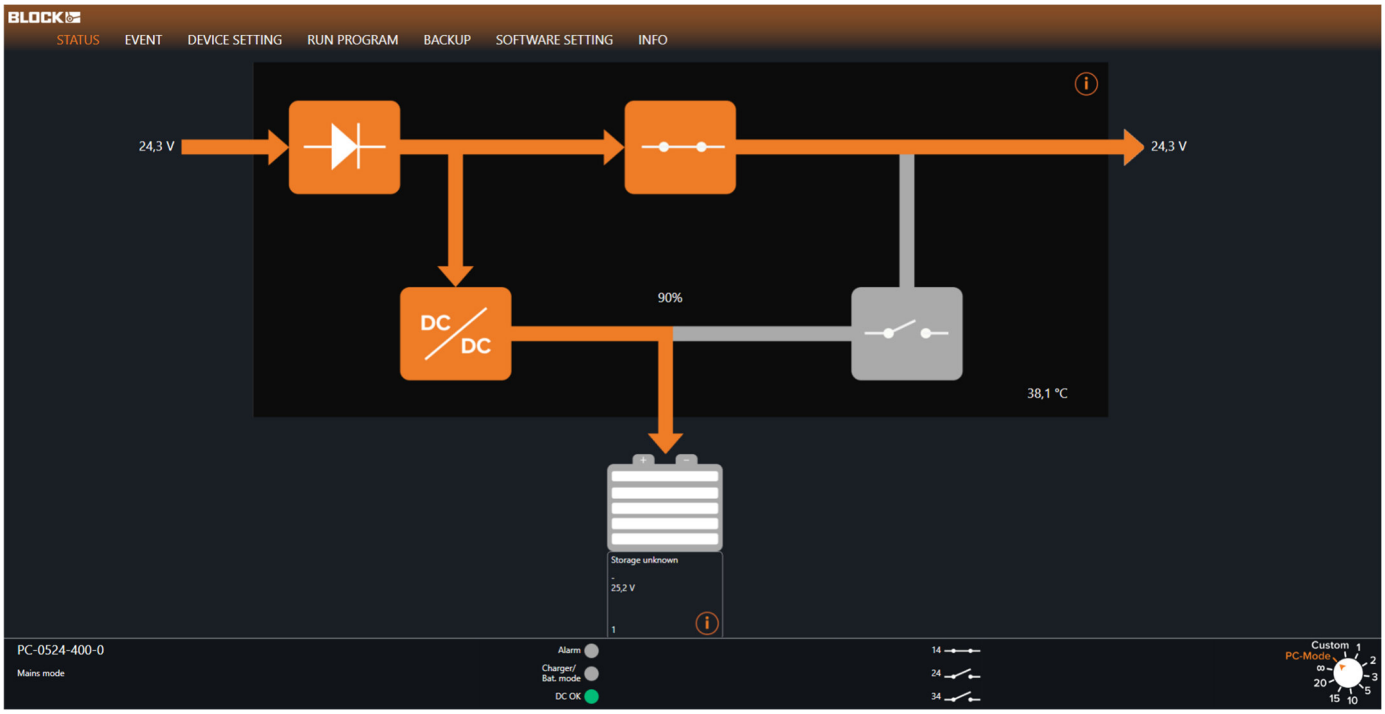
If **fuse mode** is activated and the output cannot be restarted within 5 seconds due to a short circuit or a sustained overload, the output remains permanently switched off.
To exit fuse mode, press the **"Fuse Mode"** button. This button is displayed as soon as fuse mode is active.
If a restart attempt was unsuccessful, another attempt can only be made after a waiting period of 20 seconds.



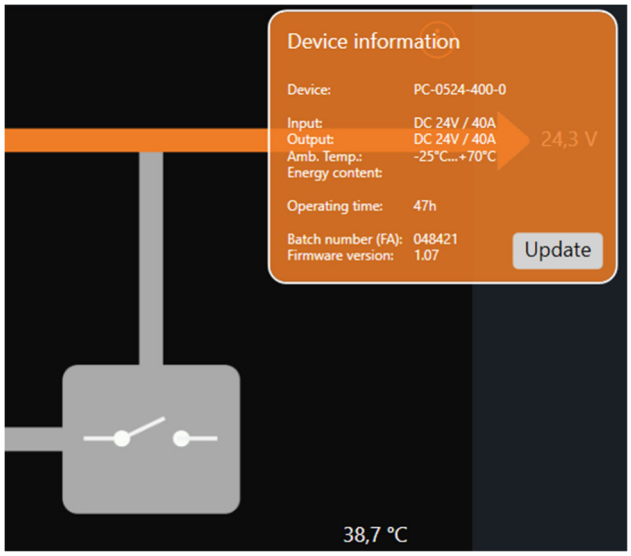
6. UPS Firmware Update

6.1 Preparation

Install the latest version of the UPS Control Software. Operate the UPS in nominal mode and navigate to the Status page within the UPS Control Software:



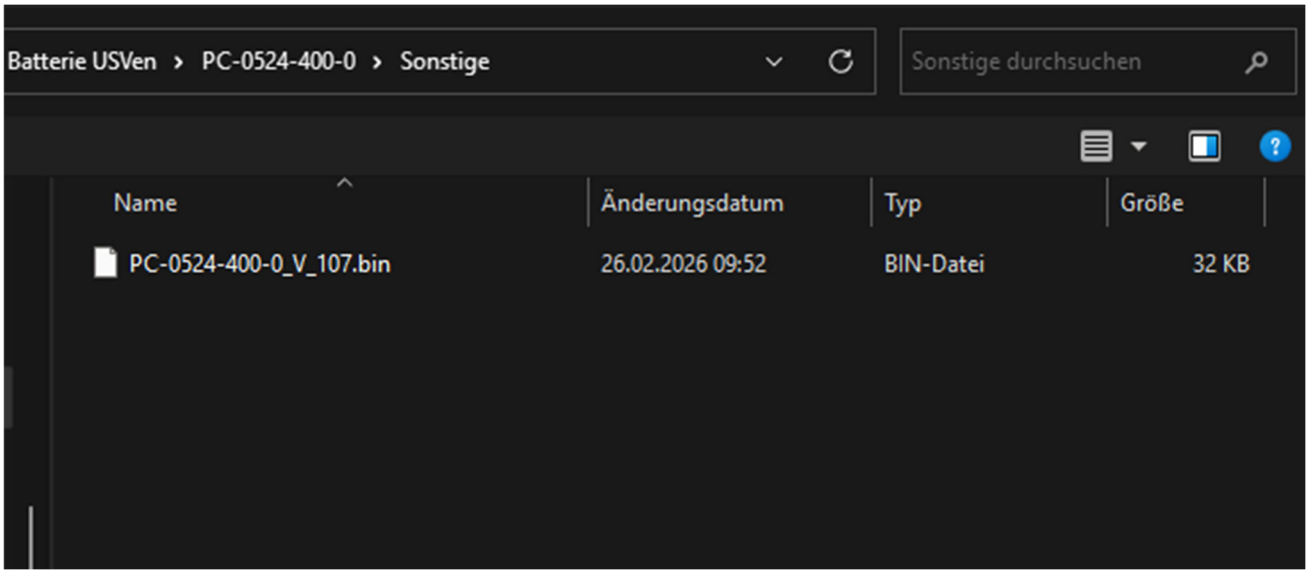
Now click on the small info icon in the upper right corner to display the device information:



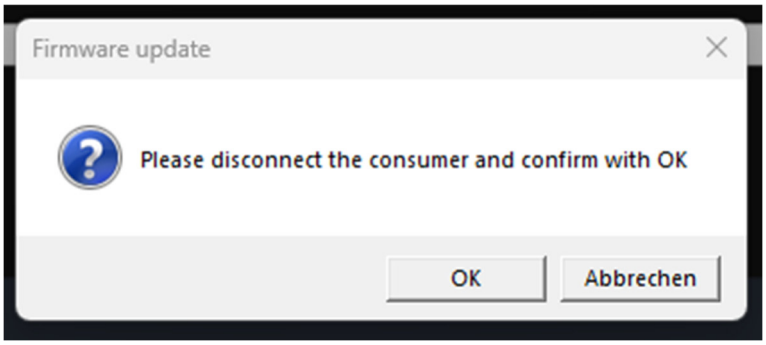
Attention:
Please disconnect the battery modules before updating the firmware. After the update, you can reconnect the battery modules and reset the target value for the battery voltage.

6.2 Perform firmware update

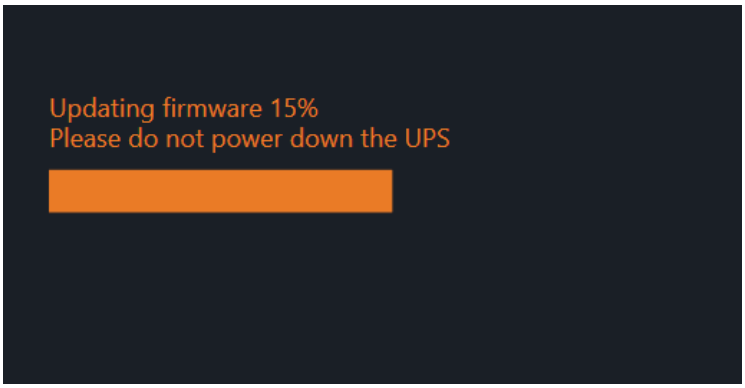
The last line of the info box shows the current firmware version. Next to it is a red link labeled "Update." Click on this link. A dialog box will open, allowing you to select the "Firmware.bin" file from your computer's file system:



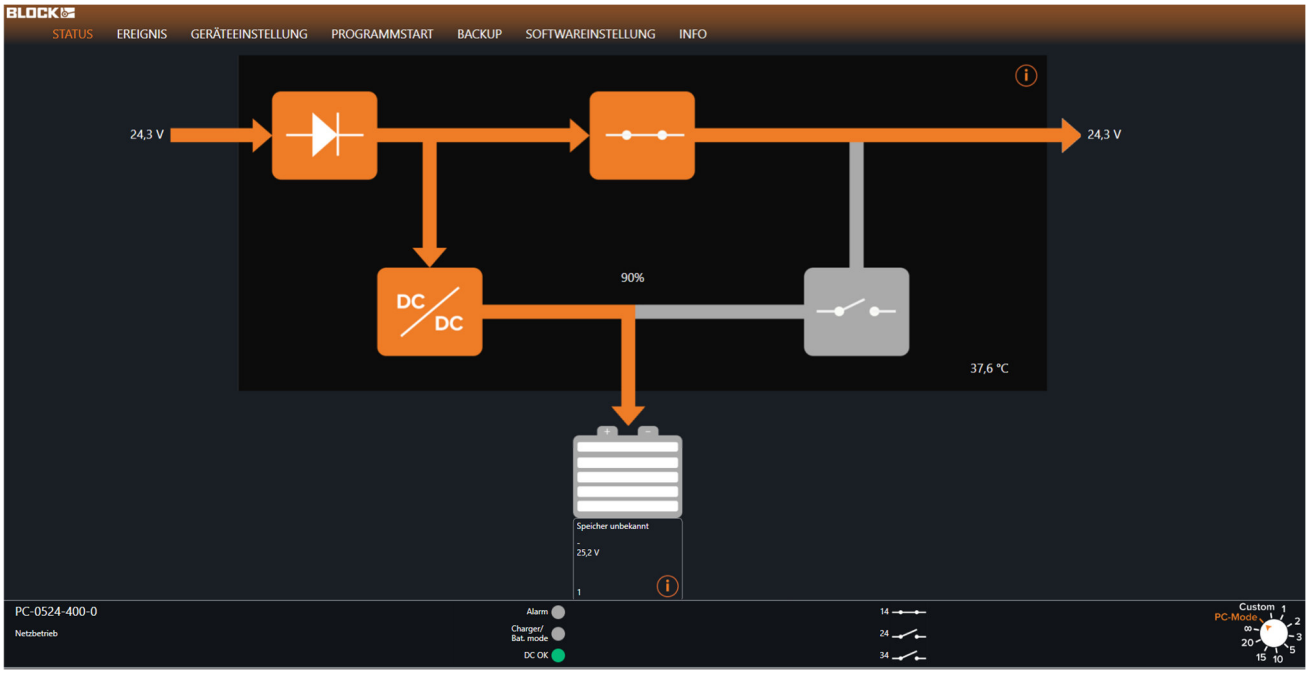
Now click on "Open." A window titled "Disconnect consumers" will appear. Please disconnect all consumers from the UPS output. The connected battery can remain connected. After disconnecting, click on "OK" in the window to close it.



After closing the window, the UPS will be updated. A charging status bar will be displayed.



After successfully completing the update, the software returns to the status page and the UPS is ready for use again. All consumers can be reconnected.



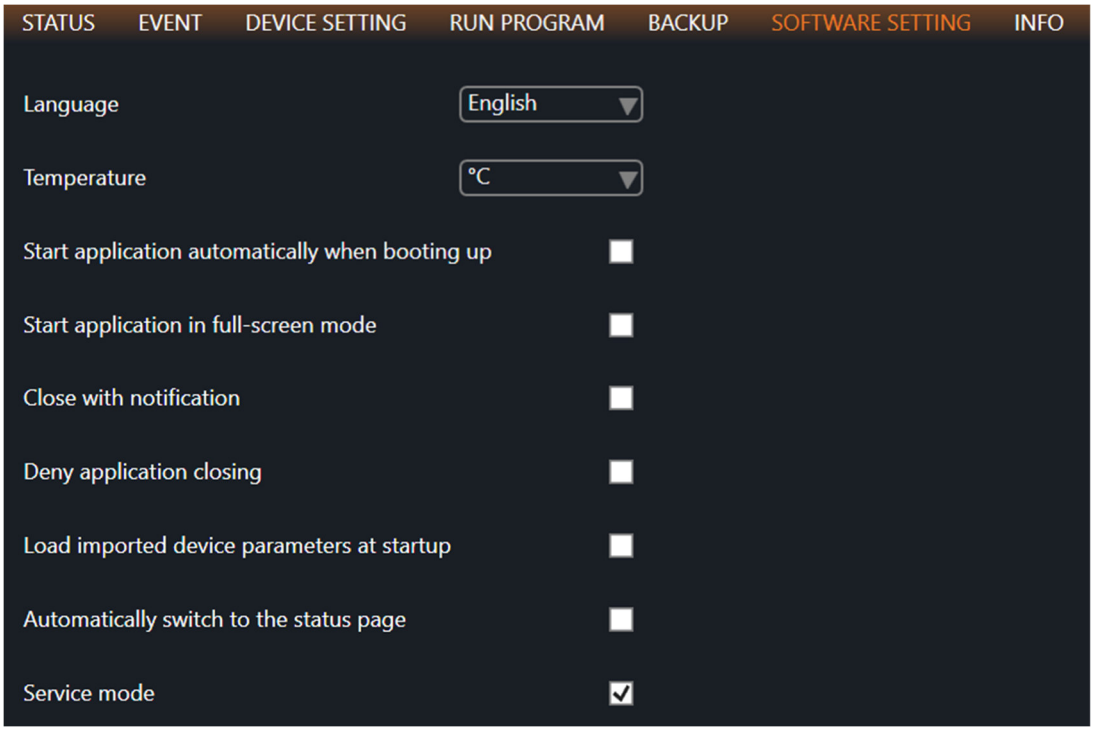
6.2.1 Restart after firmware update

After successfully completing the update, please restart the UPS once so that external and internal communication within the device is restarted. After reconnecting the operating voltage, the update is complete and the UPS displays the status again.

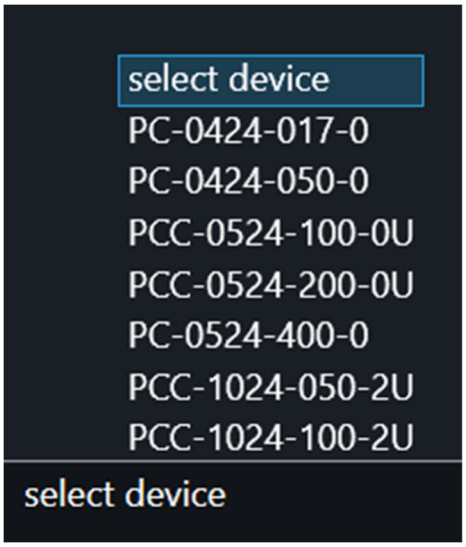
If the UPS no longer responds, see **section 6.3**

6.3 Troubleshooting

If the firmware update fails and the device no longer works, it is still possible to perform another update. To do this, navigate to the "Software Settings" page in UPS-Control and activate Service Mode:



When service mode is activated, the software automatically switches to the status page. On the status page, click "select device" at the bottom left and select the affected UPS.



Once the UPS has been selected, the normal status page will be displayed again. Now repeat the steps for updating. See section 6.1 ff.

After updating, exit service mode and reconnect the UPS.