Operating Instructions

BlueNet Monitored Plus

BlueNet Switched

BlueNet Managed

BlueNet Power Unit

Blu≡Net

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Contents

1   Introduction

Congratulations on selecting the intelligent power strip from Bachmann's BlueNet series. From the moment of installation, the various products in the Bachmann BlueNet range will deliver you a high level of cost-effectiveness. The various modules offer you the best conditions for setting up an optimised energy management system.

Before starting to use this product please read the complete operating instructions and observe all operational and safety notices to ensure safe operation.

2   Safety Information

- Condensate presents the risk of potentially lethal electric shock or short circuits and product destruction. Such risks may present themselves when the power strip is moved from a cold room to a warm one.
  - » Before connecting, the power strip must be stored at room temperature for at least 6 hours.

- Working on live parts with wet hands may result in death.
  - » Do not work on the power strip with wet hands.

- There is a risk of electric shock when touching damaged, exposed or live parts.
  - » Always check the power strip for damage before use. The power strip must not be used if the cable insulation or casing is damaged.

!   **Caution! Damage to device or risk of fire!**

- When selecting an installation site, avoid high air humidity, high temperatures, dampness, solvents, combustible gases, dust and vapours.
  - » Ensure that the power strip is operated within the stated parameters and that the heat produced during operation is dissipated.

- Devices with too high a power rating may damage the power strip.
  - » Never exceed the maximum power per phase stated on the power strip.

Safety Information

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! **Caution! Damage to device or risk of fire!**

- Transport or improper handling may damage the power strip.
    - » Do not start up device or stop using it immediately if already in use.
    - » Replace a damaged device.
    - » Contact your dealer.
    - » Return to dealer for repairs.

- Exceeding the nominal power may damage the power strip.
    - » Ensure that the power strip is only operated with a mains socket offering sufficient fusing.

! **Note**

- The device will be damaged if cleaned with aggressive substances (e.g. spirits or acidic cleaning agents).
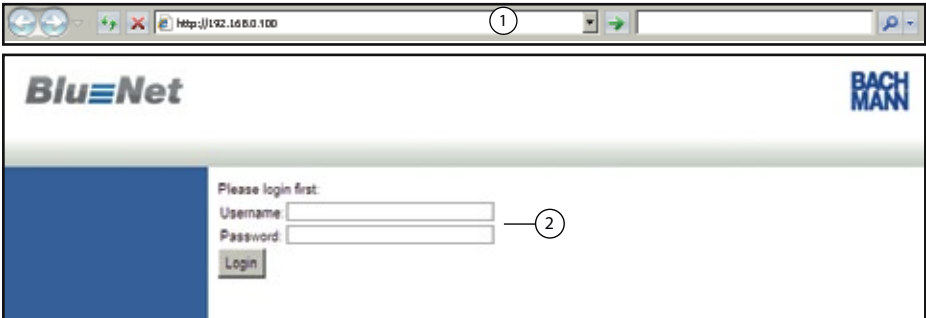   - » To clean the housing use a slightly dampened cloth.

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3 Technical Data

The technical data depends on the model. Please refer to the product label for this information.

4 Operating the web interface

4.1 Login

Once assembly is complete and the power strip is connected, you can use a browser to access the user interface.

1. Overview of login screen for BlueNet

1. **Browser address bar**: Field for entering the power strip's IP address. (Example)
2. **Login input area**: Field for entering the login.

4.1.1 Logging in

1. Open your browser.
2. Enter the IP address of the power strip in the browser's address bar.
   For example: http://192.168.0.100
3. Enter your user name.
4. Enter your password.
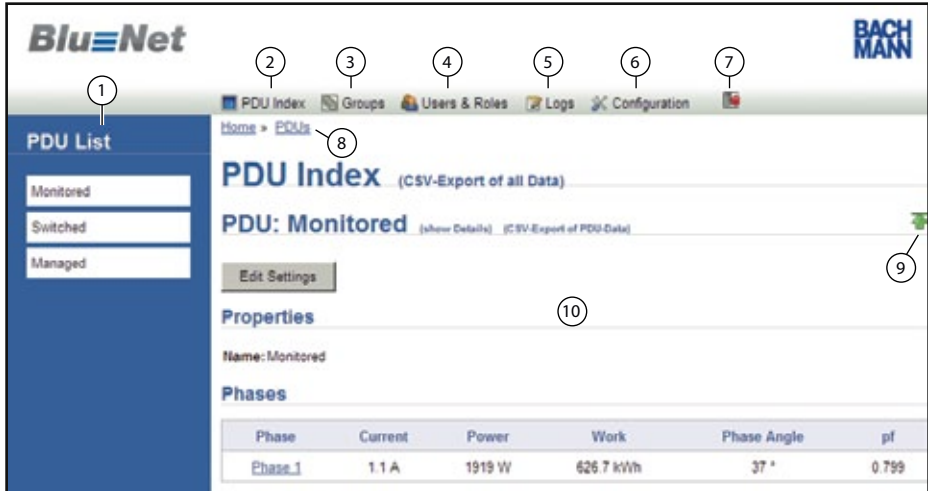5. Click on **Login**.

Starting up for the first time

When starting up for the first time, enter the following:
- User name: admin
- Password: admin

Be sure to change the password once you have logged in for the first time.

4.2 User interface

2. Overview of user interface for BlueNet

> **1. Sidebar**: Shows lists and sub-menus.
> **2. PDU Index**: Shows the start page for the power strip.
> **3. Groups**: Create, edit and delete groups.
> **4. Users & Roles**: Create, edit and delete user roles.
> **5. Logs**: Shows the log events.
> **6. Configuration**: Edit the properties of the power strip.
> **7. Logout**: Log out from the power strip.
> **8. Navigation path**: Shows your current position in the menu.
> **9. To top arrow**: Takes you to the top of the page.
> **10. Main input field**: Shows all important information and input fields.

Operating the web interface

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4.3 PDU Index - Main menu
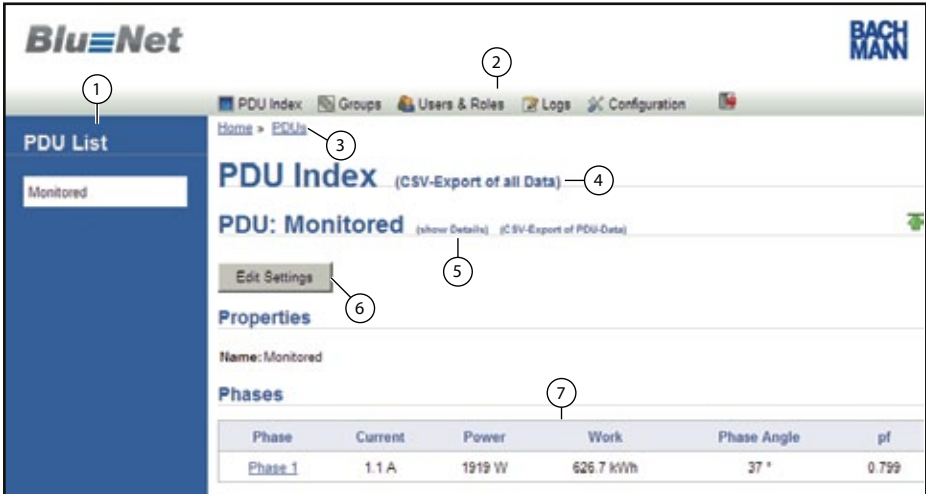
3. PDU Index

1. **PDU List**: Shows the name of the power strip.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **PDU Index (CSV-Export of all Data)**: Allows all data to be exported.
5. **Show Details**: Shows more information about the power strip.
   See screenshot "4. PDU status panel "Displays" (dependent on model)"
6. **Edit Settings**: Allows the general settings to be edited.
7. **Phases**: Shows the electrical values of the power strip.

4.3.1 General settings

You can undertake general power strip settings in this menu.

1. Click on **Edit Settings**.
2. Enter the data you want in the corresponding input fields.

> !
> • **Name**: Name of power strip.
> • **Location**: Place where the power strip can be found.
> • **Comment**: Free input field.

---

3. Enter the threshold you want for maximum and minimum limits. (Depends on model.)

> !
> **Thresholds**
>
> The thresholds define the lower and upper limits of an electrical value. A message can be issued if the thresholds are undershot or overshot. (Depends on model)
>
> • **Current**: Enter a lower and upper limit for the current.
> • **Voltage**: Enter a lower and upper limit for the voltage.
> • **Phase Angle**: Enter a lower and upper limit for the phase angle.
>
> If the values are undershot or overshot, the relevant indicator in the PDU status panel "Displays" turns red. See "4. PDU status panel "Displays" (dependent on model)".

---

4. Indicate under **Notifications** how you would like to be informed when the thresholds are overshot or undershot. (Depends on model)

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!

Notifications

- **Send mail to operators**: Send message to the administrator.
- **Send SNMP traps**: Send SNMP trap to the set SNMP trap receiver. (See SNMP configuration)

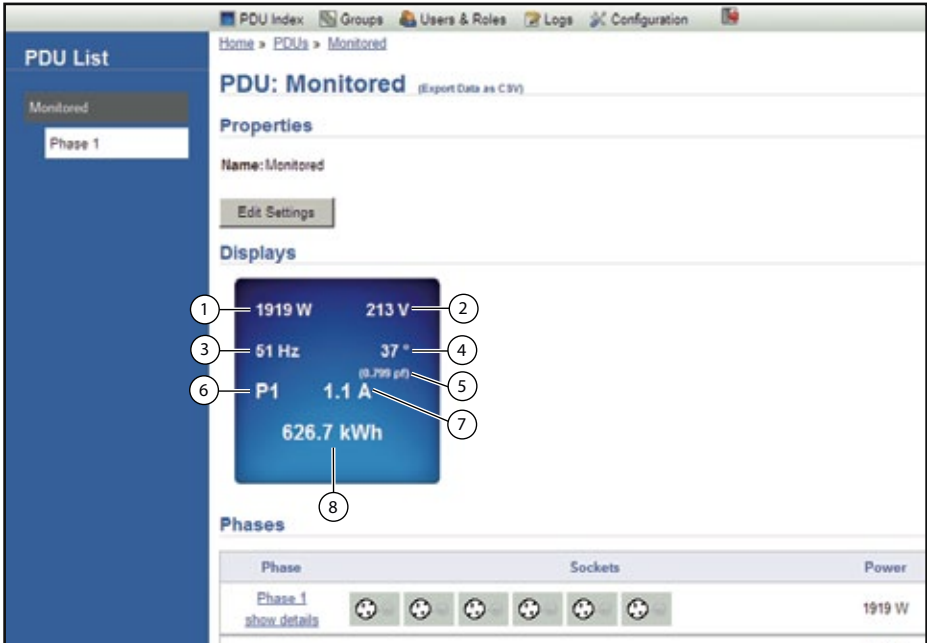You will find more information about notifications in section "4.7.4 SMTP settings" and "4.7.5 SNMP settings".

---

5. Click on **Apply Settings**.
   » The settings are applied.

4.3.2 Displaying electrical values

Proceed as follows to read the current values and status of the power strip.

1. In the **PDU List,** click on the name of the power strip.
   » The PDU status panel (Displays) appears.

4. PDU status panel "Displays" (dependent on model)

1. Effective power
2. Voltage
3. Frequency
4. Phase angle
5. Power factor
6. Number of phase
7. Power consumption
8. Total energy consumption

! The values displayed are not updated automatically. To update, click your browser's update button.

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4.3.3 Socket data

You can display values for the individual phases. (Depends on model)

1. Click on **Phase X Show details**. (**X** stands for the number of the phase)
   » The values appear.

| Phase	Current	Power	Work	Phase Angle	pf
Phase 1	1.1 A	1919 W	626.7 kWh	37 °	0.799

!

- **Phase**: Shows the number of the current phase. (Depends on model)
- **Current**: Shows the present power consumption. (Depends on model)
- **Power**: Shows the present effective power. (Depends on model)
- **Work**: Shows the total energy consumption. (Depends on model)
- **Phase Angle**: Shows the present phase angle. (Depends on model)
- **pf**: Shows the present power factor. (Depends on model)

4.3.4 Changing socket data

Each socket can be individually named and enabled. (Depends on model.)

2. Click on the name of the socket.
   » The socket appears.
3. Enter the data in the input fields.
4. Click on **Apply Settings**.
   » The entries are applied.
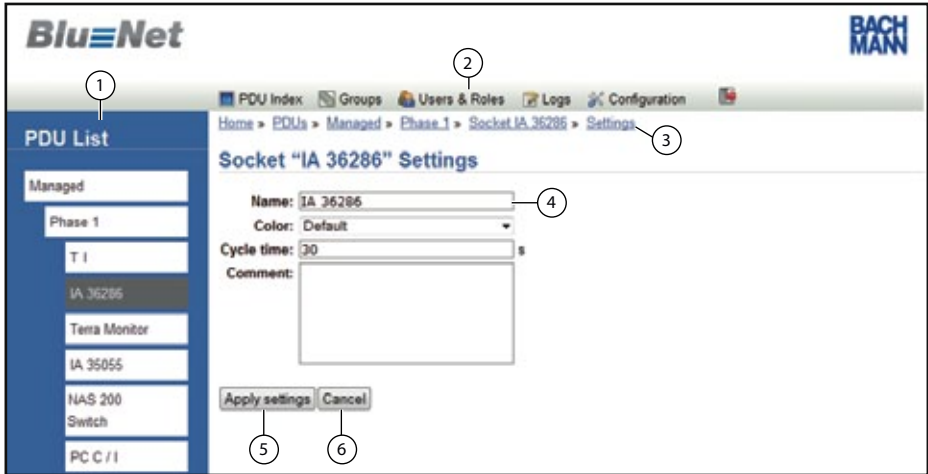
5. Settings for socket properties (depends on model)

   1. PDU List: Shows the phases and sockets of the power strip.
   2. Menu bar: Shows the main menus.
   3. Navigation path: Shows your current position in the menu.
   4. Socket: Input fields for the socket data.
   5. Apply settings: Transfers the data entered to the power strip.
   6. Cancel: Aborts input.

Name: Enter the socket's name.
Color: In the drop-down menu, you can assign a colour to the socket.
Cycle time: Enter the cycle time in seconds after which the socket is to switch back on after a cycle command.
Comment: Free input field.

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4.3.5 Data Export

This menu item allows all data for the power strip to be exported as a CSV file.

1. Click on **(CSV-Export of all Data)**.
   » The download window opens.
2. Select the storage location and click on **Save**.
   » The data is saved.

> ! The exported CSV data are separated by a semicolon. This must be noted when importing into other programs.

4.4 Groups

In this menu, you can create, edit and delete groups. Groups allow various sockets of a power strip to be combined. All screens or all computers can thereby be managed at the same time for example. (Depends on model)

6. Socket Groups user interface

1. **Group List**: Shows the existing groups.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **Group overview**: Shows the group and its sockets.
5. **Group**: Shows the group name and opens the group.
6. **Sockets**: Shows the sockets and their status.
7. **Power**: Shows the current power of the group.
8. **Switch Group**: Drop-down menu for the switch states to be enabled.
9. **Apply**: Applies the value selected.
10. **Create new group**: Creates a new group.

4.4.1 Managing groups

Creating groups

1. Click on **Create new group**.
2. Enter the data you want in the corresponding input fields.
3. Tick the checkboxes next to the sockets you want to include in the group.
4. Click on **Create group**.
    » The new group is created.

Editing group

1. Click on the **group name**.
2. Click on **Edit Settings**.
3. Enter the data you want in the corresponding input fields.
4. Tick the checkboxes next to the sockets you want to include in the group or remove from the group.
5. Click on **Save changes**.
    » The new settings are applied.

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Deleting group

! Note

The process of deleting a group cannot be reversed.
All the group's settings are lost.

---

1. Click on the group name.
2. Click on **Delete group**.
3. Click on **OK**.
   » The group is deleted.

Controlling group

In the groups overview, you can assign a switch state to all sockets in a group at the same time.

1. Click on the drop-down menu next to the group.
2. Select the action you want.

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Switching commands

None: No action is undertaken.

Cycle: The sockets are switched on again after a defined time (depends on model).

» This appears in the display .

On: The sockets are switched on. (Depends on model)

» This appears in the display .

Off: The sockets are switched off. (Depends on model)

» This appears in the display .

Identify: The LED on the relevant sockets flashes. (Depends on model)

» This appears in the display .

Unidentify: The LED on the relevant sockets goes out.
(Depends on model)

---

3. Click on **Apply**.
   » The desired action is undertaken.

Editing the properties of individual sockets

You can click on the individual sockets in the group overview.
Then you can edit their properties. (Depends on model.)
You will find more information about this in the Sockets section.

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4.5 Users & Roles

In this menu, you can create, edit and delete users and roles.
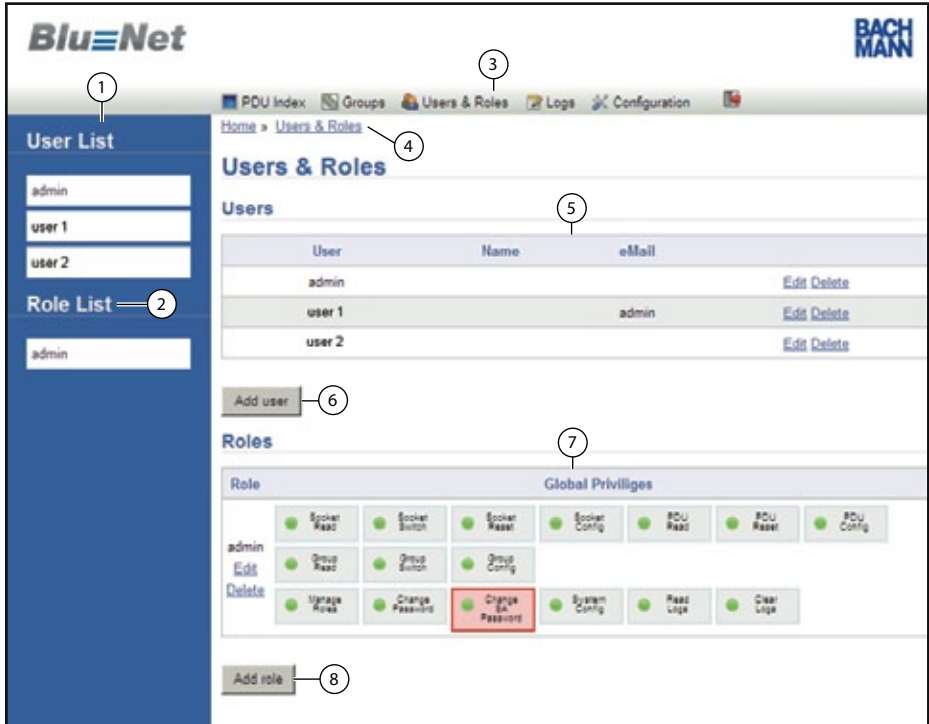
7. Users & Roles user interface

1. **User List**: Shows the existing users.
2. **Role List**: Shows the existing roles.
3. **Menu bar**: Shows the main menus.
4. **Navigation path**: Shows your current position in the menu.
5. **Users**: Shows the list and properties of the existing users.
6. **Add user**: Adds a new user.
7. **Roles**: Shows the list and properties of the existing roles.
8. **Add role**: Adds a new role.

4.5.1 Users

In this menu, you can create, edit and delete users.

Creating users

1. Click on **Add user**.
2. Enter the data you want in the input fields.

!
- **Username**: Enter the user name.
- **Name**: Enter the user's real name.
- **E-Mail**: Enter the user's e-mail address.
- **Password**: Enter the password. (Freely selectable)
- **Retype Password**: Enter the password again.
- **Comment**: Free input field.

---

3. Under **Role,** select the role which the new user is to assume.
   (See section "4.5.2 Roles")
4. Click on **Add user**.
   » The user has been created.

Editing user

1. Click on **Edit** next to the user you want to edit.
2. Edit the data you want to change in the corresponding input fields.
3. Click on **Edit User**.
   » The data is changed.

Deleting user

!   **Note**

The process of deleting a user cannot be reversed.
All the user's settings are lost.

---

1. Click on **Delete** next to the user you want to delete.
2. Click on **OK**.
   » The user is deleted.

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4.5.2 Roles

In this menu, you can create, edit and delete roles.

Creating role

3. Click on **Add role**.
4. Enter the name you want for the role.
5. Under **Global Privileges** select the rights you want to assign.

!

Global Privileges

The following settings can be undertaken:

- **Sockets**: Allows settings to be undertaken on the individual sockets. (Depends on model)
- **PDU**: Settings for power strip.
- **Groups**: Settings for roles.
- **System**: Settings for system management. (Administrator's rights)

The following rights can be assigned:

- **Read**: The role has read-only rights.
- **Switch**: The role can enable/disable the individual sockets. (Depends on model)
- **Reset**: The role can reset the energy meter for the phase.
- **Config**: The role can undertake settings.

Settings undertaken under Global Privileges take priority over settings at socket and/or PDU level.

---

6. Under **Properties** select the rights you want to assign.

! **Properties**

The following settings can be undertaken:

- **PDU Read**: The role has read-only rights.
- **PDU Reset**: The role can reset the energy meter.
- **PDU Config**: The role can change settings.

The following rights can be assigned for each socket:

- **Read**: The role can read the values of the power strip and/or phase. (Depends on model)
- **Reset**: The role can reset the energy meter.
- **Switch**: The role can enable/disable the individual sockets. (Depends on model)
- **Config**: The role can change the setting for the individual sockets. (Depends on model)

Select all: Allows the setting for all sockets to be enabled/disabled at the same time.

7. Under **Groups** select the rights for the groups. See section "4.4 Groups"

! **Groups**

The following settings can be undertaken:

- **Socket Count**: Number of sockets in this group.
- **Read**: The role has read-only rights.
- **Switching**: The role can enable/disable the individual sockets. (Depends on model)
- **Config**: The role can change settings.

8. Click on **Save changes**.
   » The role is created.

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User List

All existing user accounts are shown in the sidebar. By clicking on the user name, you can display more information about the user.

Role List

All existing roles are shown in the sidebar. By clicking on the role list, you can display more information about the role.

4.6 Logs

The power strip's log data is shown in this menu. All instances of power strip access are logged in the table.

8. Logs user interface

1. **Menu bar**: Shows the main menus.
2. **Navigation path**: Shows your current position in the menu.
3. **Log data**: Shows the last 100 log entries.
4. **Clear**: Deletes all log data.

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The following information is available

Date: Shows the time and date of access.
System: Shows the system level of access.
Priority: Shows the priority of access.

      0 = Emergency
      1 = Alert
      2 = Critical
      3 = Error
      4 = Warning
      5 = Notice
      6 = Informational
      7 = Debug

Message: Shows information about access.

Instances of access deleted automatically

If more than 100 log entries have been stored and new ones are added, the oldest ones are automatically deleted. A Syslog server does not offer permanent logging. See section "4.7.6 Log settings".

Manually deleting log data

Note

The process of deleting log data cannot be reversed. All log data is lost.

---

1. Click on **Clear**.
   » The log data is deleted.

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4.7 Configuration

You can undertake settings to manage the power strip in this menu.
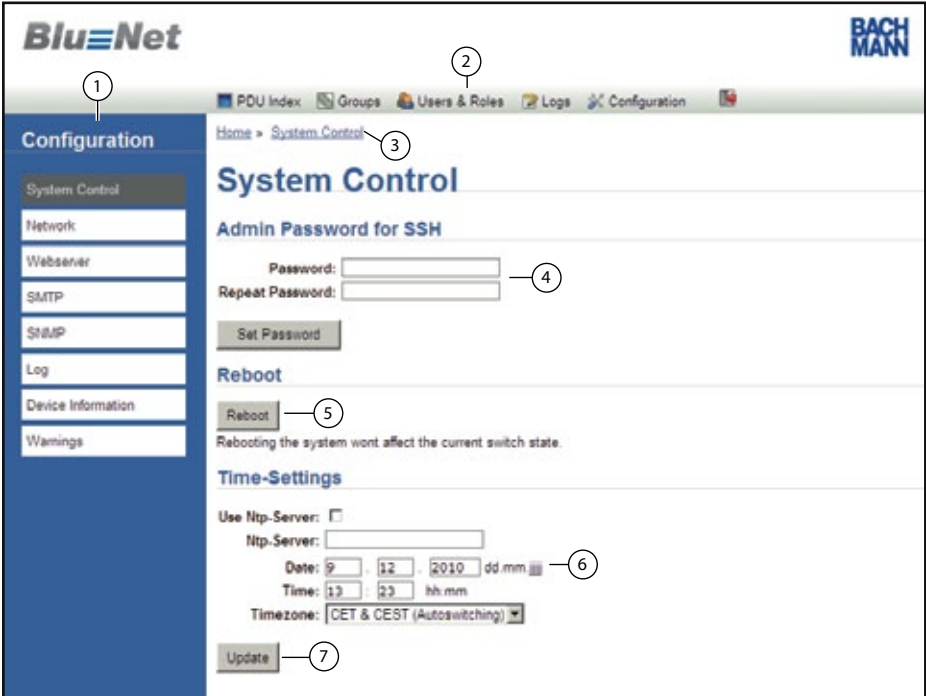
9. User interface Configuration > System Control

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **Admin Password for SSH**: Area for entering the administrator SSH password.
5. **Reboot**: Resets the power strip.
6. **Time-Settings**: Area for entering time settings.
7. **Update**: Transfers the data entered to the power strip.

4.7.1 System Control

Admin Password for SSH

Here you can define the administrator password for SSH.

1. Enter the password. (Freely selectable)
2. Enter the password again under **Repeat Password**.
3. Click on **Set Password**.
   » The password is saved.

Reboot

You can reboot the power strip.

> **!** **Reboot**
>
> When the power strip is rebooted, all the functions of the power strip are retained! The power supply to connected consumers is not interrupted. Rebooting restarts the web server; the switch states are retained and the energy meters continue to run.

---

1. Click on Reboot.
   » The web server is rebooted.

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Time Settings

Entering time manually

1. Enter the date in the format **dd.mm.yyyy**. (d=day m=month y=year)
2. Enter the time in the format **hh:mm**. (h=hour m=minute)
3. Select the time zone.

!

Time zones

- **CET&CEST (autoswitching)** = Central European Time with automatic summer time changeover
- **CET** = Central European Time
- **CEST** = Central European Summer Time
- **UTC** = Universal Time Clock

---

4. Click on **Update**.
   » The time is set.

Defining time via server

1. Tick the checkbox **Use NTP-Server**.
2. Enter the address of the NTP server.
3. Click on **Update**.
   » The time is automatically transferred from the NTP server to the power strip with immediate effect.

4.7.2 Network

This menu contains information about the power strip's network address. This information can be changed.
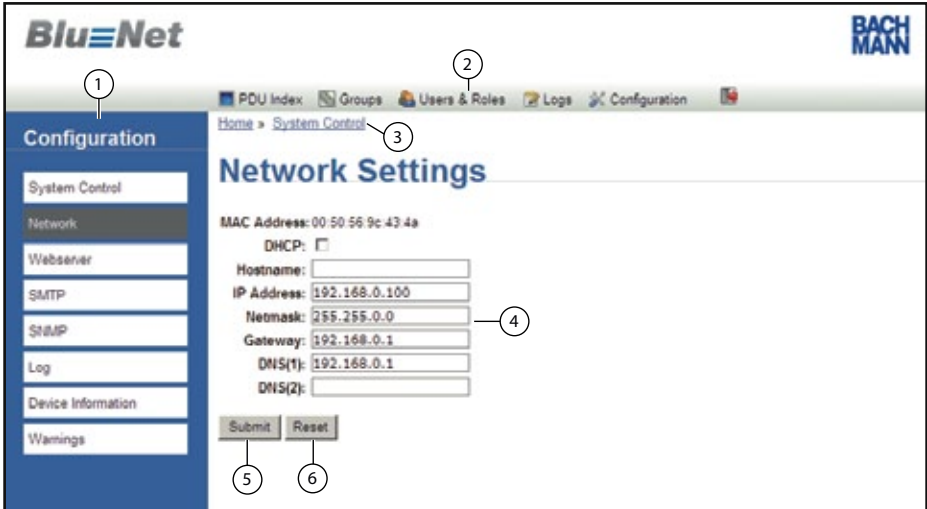
10. User interface Configuration > Network

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **Network Settings**: Area for entering network properties.
5. **Submit**: Transfers the data entered to the power strip.
6. **Reset**: Deletes all data entered from the input fields.

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Undertaking settings

1. Enter the data you want in the corresponding input fields.

   !

   Possible entries

   - **MAC Address**: Shows the MAC address. (Cannot be altered)
   - **DHCP**: You can also automatically receive the settings for the power strip from a DHCP server. To do this, tick the checkbox.
   - **Hostname**: Shows the current host name. (Can be altered)
   - **IP Address**: Shows the current IP address. (Can be altered)
   - **Netmask**: Shows the current netmask. (Can be altered)
   - **Gateway**: Shows the current netmask. (Can be altered)
   - **DNS(1)**: Shows the IP address of the first DNS server. (Can be altered)
   - **DNS(2)**: Shows the current DNS 2. (Can be altered).

2. Click on **Submit**.
   - » The entry is applied.

4.7.3 Web server

In this menu you can set encrypted access to the power strip using SSL.
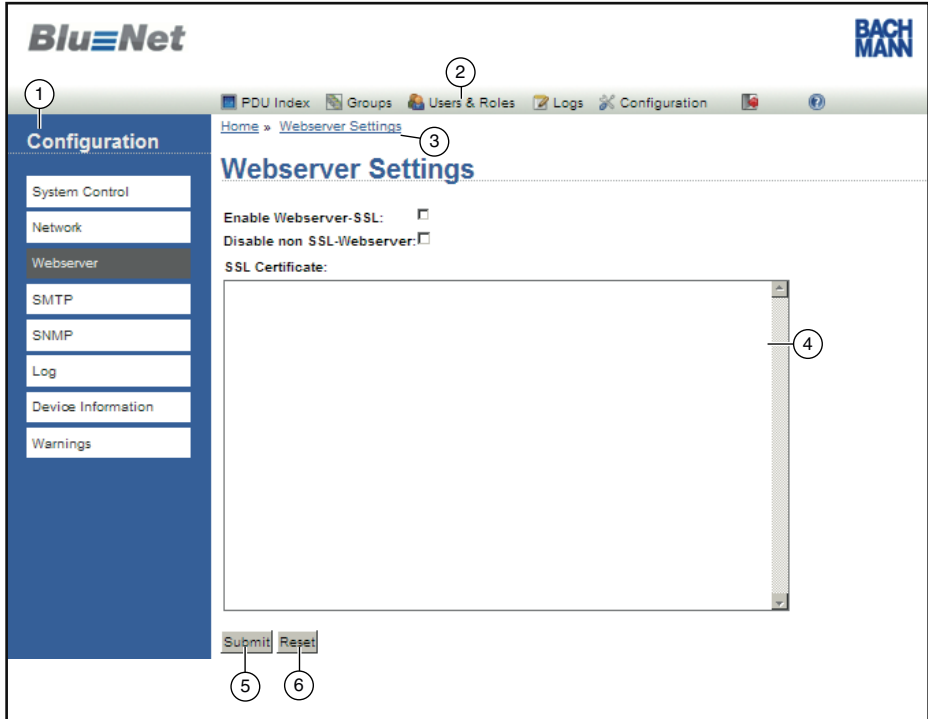
11. User interface Configuration > Webserver

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **Webserver Settings**: Area for entering web server settings.
5. **Submit**: Transfers the data entered to the power strip.
6. **Reset**: Deletes all data entered from the input fields.

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Undertaking settings

1. Tick the checkbox **SSL**.
2. Enter the SSL code in the input field.
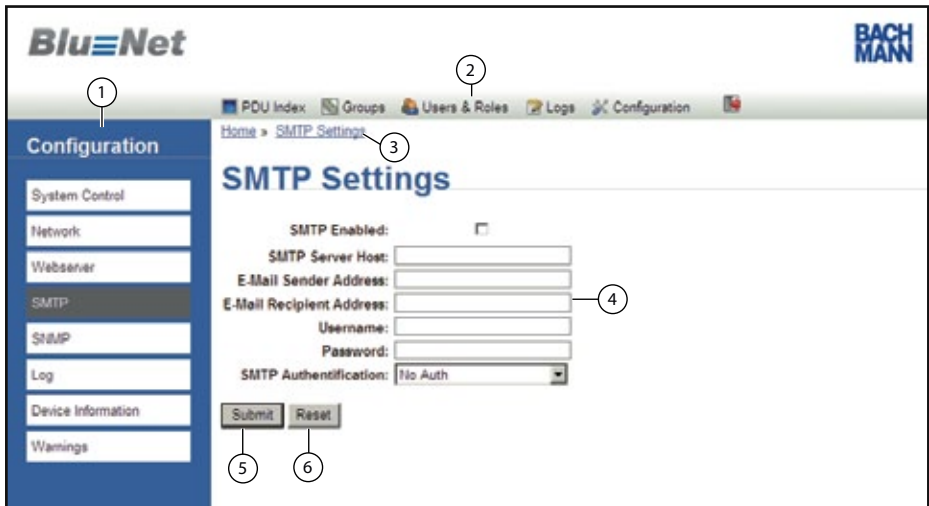3. Click on **Submit**.
   » SSL access is set up.

! **SSL encryption**

You can use 256 bit encryption with a maximum key length of 8192 bits.

4.7.4 SMTP settings

In this menu you can define or change the SMTP settings for the power strip.

12. User interface Configuration > SMTP

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **SMTP Settings**: Area for entering the SMTP settings.
5. **Submit**: Transfers the data entered to the power strip.
6. **Reset**: Deletes all data entered from the input fields.

Undertaking settings

1. Enter the data you want in the corresponding input fields.

!   **Possible entries**

- **SMTP Server Host**: Shows the current SMTP server host.
- **Port**: Shows the current port.
- **E-Mail sender Address**: Shows the current address for sending e-mail.
- **E-Mail Recipient**: Shows the name of the recipient of warnings and error messages.
- **Username**: Shows the current e-mail user name.
- **Password**: Shows the current e-mail password.
- .

---

2. Select the type of authentication from the drop-down menu.

!   **Type of authentication**

In the **SMTP Authentification** field you can select the type of SMTP authentication.

- **No Auth** = No authentication is undertaken
- **Auth** = Authentication is undertaken
- **MD5 Auth** = Authentication is undertaken with a Message-Digest Algorithm 5

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3. Click on **Submit**.
   » The entry is applied.

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4.7.5 SNMP settings

In this menu you can define or change the SNMP settings for the power strip.
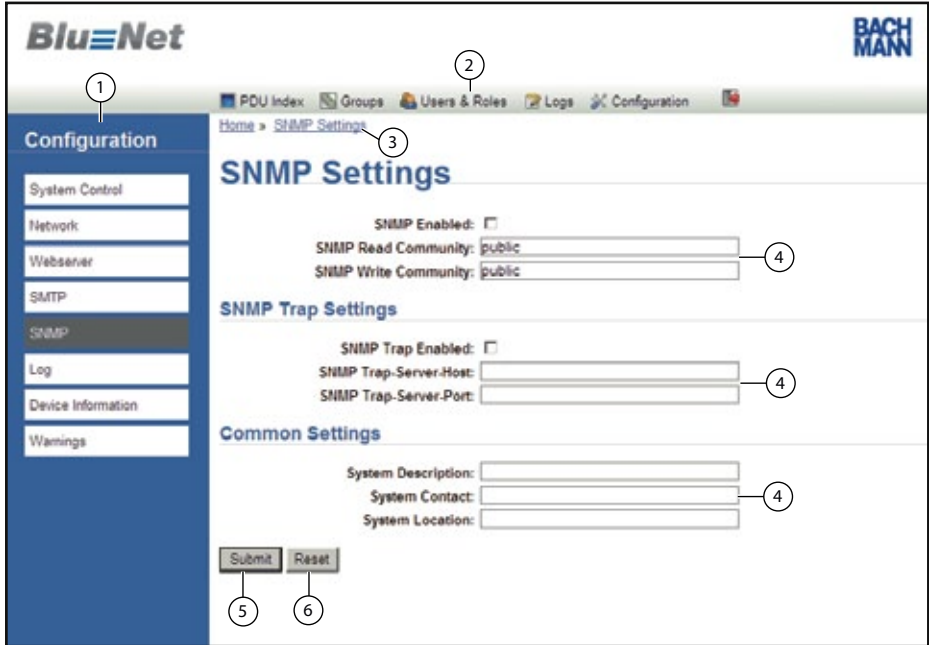
13. User interface Configuration > SNMP

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **SNMP Settings**: Area for entering the SNMP settings.
5. **Submit**: Transfers the data entered to the power strip.
6. **Reset**: Deletes all data entered from the input fields.

Undertaking settings

1. Enter the data you want in the corresponding input fields.

!

Possible entries

- **SNMP V2 Enabled**: Shows whether SNMP V2 is enabled.
- **SNMP Read Community**: Shows which group has reading rights.
- **SNMP Write Community**: Shows which group has writing rights.
- **SNMP System Description**: Shows the name of the SNMP system.
- **SNMP System Contact**: Shows the name of the SNMP system administrator.
- **SNMP System Location**: Shows the location of the system.
- **SNMP Trap Enabled**: Shows whether SNMP traps are enabled.
- **SNMP Trap-Server-Host**: Shows the current SNMP trap server host.
- **SNMP Trap-Server-Port**: Shows the current SNMP trap server port.
.

2. Click on **Submit**.
   » The entries are applied.

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4.7.6   Log settings

In this menu you can define or change the log settings for the power strip.
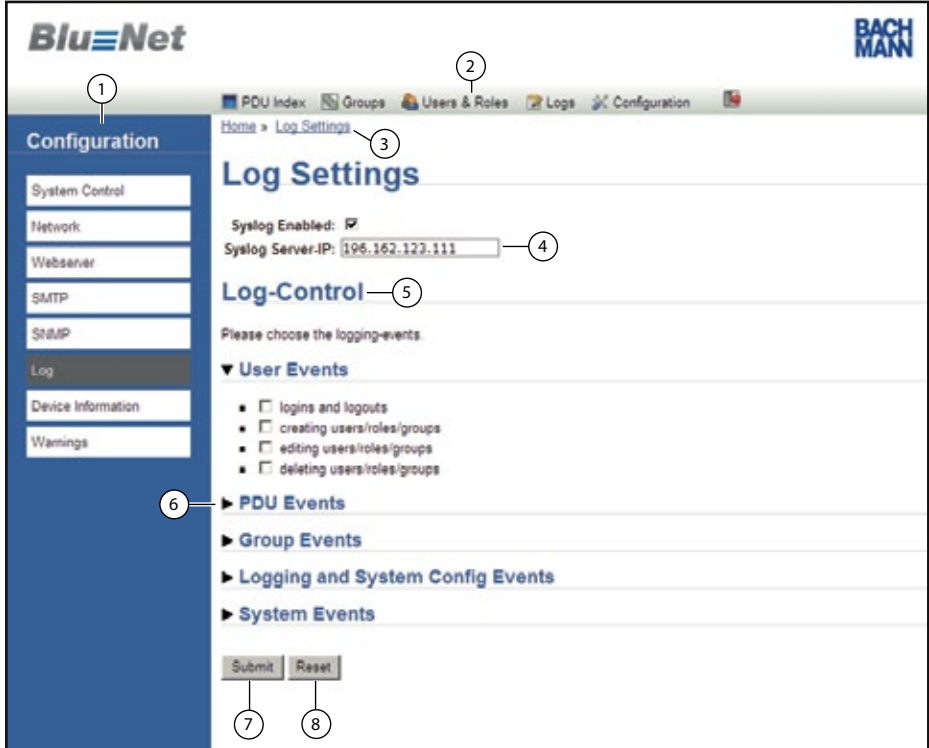
14. User interface Configuration > Log Settings

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **SNMP Settings**: Area for entering the SNMP settings.
5. **Log-Control**: Checkboxes for events to be logged.
6. **Arrows**: Clicking on the arrows shows/hides the sub-items.
7. **Submit**: Transfers the data entered to the power strip.
8. **Reset**: Deletes all data entered from the input fields.

Enabling Syslog logging

1. Tick the checkbox **Syslog Enabled**.
2. Enter the IP address of the Syslog server.
3. Use the corresponding checkboxes to indicate the events which are to be logged.

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! **Logging-events**

The following messages can be logged.

Clicking on ▶ shows the individual event areas.

User Events
- **logins and logouts**: Logging in and out.
- **creating users/roles/groups**: Creating users, roles, groups
- **editing users/roles/groups**: Editing users, roles, groups
- **deleting users/roles/groups**: Deleting users, roles, groups

PDU Events
- **threshold warning**: Entered threshold has been overshot or undershot
- **switch events**: Switch events
- **energy counter resets**: Energy meter was reset
- **changing PDU/phase/socket settings**: Settings for PDU, phase and / or sockets have been changed

Group Events
- **creating/editing/deleting groups**: Creating, editing and deleting a group
- **switching groups**: Change in the switching group

Logging and System Config Events
 (Group and system events)
- **clearing logs**: Deleting log files
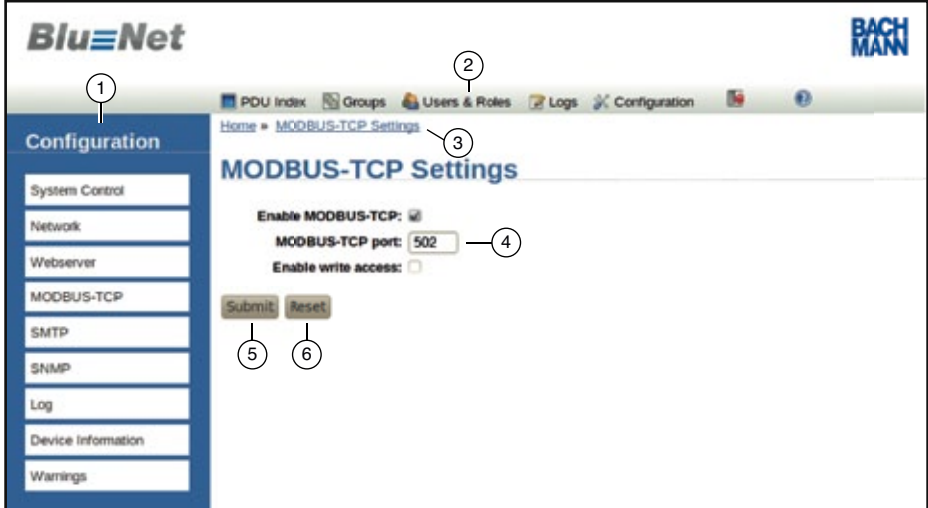- **changing system settings**: Changes to system setting

System Events
- **system boots**: System boots
- **firmware upgrades**: Firmware upgrades

---

4. Click on **Submit**.
   » From now on, the log data is stored on the log server.

4.7.7 Modbus TCP settings

In this menu Modbus TCP can be enabled and configured.

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **Modbus TCP Settings**: Area for entering Modbus TCP settings.
5. **Submit**: Transfers the data entered to the power strip.
6. **Reset**: Deletes all data entered from the input fields.

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Undertaking settings

> ⚠️ **Possible entries**
>
> - **Enable Modbus TCP**: Enables Modbus TCP (reboot needed).
> - **Modbus TCP Port**: Here the port used by Modbus TCP (default: 502) can be changed. (A reboot is needed to apply the settings)
> - **Enable write access**: Enables write access for Modbus TCP.

4.7.8 Device Information

The power strip's basic settings appear in this menu.

15. User interface Configuration > Device Information

1. **Configuration**: Shows the sub-menus.
2. **Menu bar**: Shows the main menus.
3. **Navigation path**: Shows your current position in the menu.
4. **Device Information**: Area for entering general settings.
5. **Submit**: Transfers the data entered to the power strip.
6. **Reset**: Deletes all data entered from the input fields.
7. **General information area**: Shows a summary of all the information available.

Undertaking settings

1. Enter the data you want in the corresponding input fields.

!

Possible entries

Hostname: Enter the host's name.
System Description: Enter the description of the system.
System Contract: Enter the system administrator's name.
System Location: Enter the location of the power strip.

---

2. Click on **Submit**.
   » The entries are applied.

4.7.9 Warnings

This menu shows you all the warning messages.

Current warnings are shown, e.g. if thresholds are exceeded or switch processes fail.

5 SSH console

5.1 Overview of commands

5.1.1 getcfg and setcfg

getcfg reads and setcfg writes a configuration entry to the configuration database.

```
$ getcfg key # accesses the key.
$ getcfg key value # accesses the key. If the key isn't
available, returns a value.
$ setcfg key # deletes the key.
$ setcfg key value # sets key to value.
```

5.1.2 hwflash, hwlist and update

hwflash flashed an ihex file to a circuit board. hwlist lists all intelligent hardware components of a PDU and update updated all connected PDUs with all updates in a directory.

```
$ hwflash pdu file
$ hwlist pdu
$ update dir
```

5.1.3 log and logadd

log lists log entries while logadd adds log entries.

```
$ log # list logs.
$ log -d # delete logs.
$ logadd priority subsystem message
```

5.1.4 pdulist, tree and warnlist

pdulist lists all PDUs. tree lists all PDUs with all phases and sockets.
warnlist lists all warnings.

```
$ pdulist
$ tree # output in plain.
$ tree -t xml # output in xml.
$ warnlist pdu
```

5.1.5 phase and socket

phase lists phase properties (and measurements). socket lists socket properties
or switches the socket.

```
$ phase pdu phase # Shows the phase properties and measurements.
$ socket --help # Shows the syntax help for socket.
$ socket show pdu phase socket # Shows the socket properties.
$ socket on pdu phase socket # Switches on the socket.
$ socket off pdu phase socket # Switches off the socket.
$ socket cycle pdu phase socket # Performs a power cycle on the
socket.
$ socket identify pdu phase socket # Enables the socket's
identify function.
$ socket unidentify pdu phase socket # Disables the socket's
identify function.
```

5.1.6 limit

limit sets limit values for a phase or socket.

```
$ limit --help # Shows the syntax help for limit.
$ limit pdu phase [options] # Sets the limit values of a phase
accordingly.
```

The following arguments are possible:

```
-i [ --lower-current ] # Lower limit for current
-I [ --upper-current ] # Upper limit for value
-n [ --lower-ncurrent ] # Lower limit for current at neutral
conductor
-N [ --upper-ncurrent ] # Upper limit for current at neutral
conductor
-u [ --lower-voltage ] # Lower limit for voltage
-U [ --upper-voltage ] # Upper limit for voltage
-p [ --lower-phaseangle ] # Lower limit for phase angle
-P [ --upper-phaseangle ] # Upper limit for phase angle
```

Please note: If limit values are to be set for the neutral conductor, the phase group must
be stated in place of the phase.

5.1.7 pduset and socketset

pduset sets settings on the PDU, socketset sets settings on a socket.

```
$ pduset pdu name # Sets the PDU name.
$ socketset pdu phase socket name # Sets the socket name.
$ socketset pdu phase socket name color # Sets the socket
colour.
```

5.1.8 factorydefault

factorydefault restores the PDU's default factory settings.
To start, the tool needs the argument "--confirm" to ensure that a user doesn't delete all settings by mistake.

```
$ factorydefault --confirm
```

5.1.9 restart

restart restarts the system within a minute. The tool doesn't need any arguments.

```
$ restart
```

6   Serial console

Depending on the model, there is a 9-pole connection for a serial terminal on the front of the PDU.

The following settings are needed for a connection:

Baud rate:	115200
Data bits:	8
Parity:	none
Stop bits:	1
Flow control:	none

The serial command line uses the same commands as the SSH command line.