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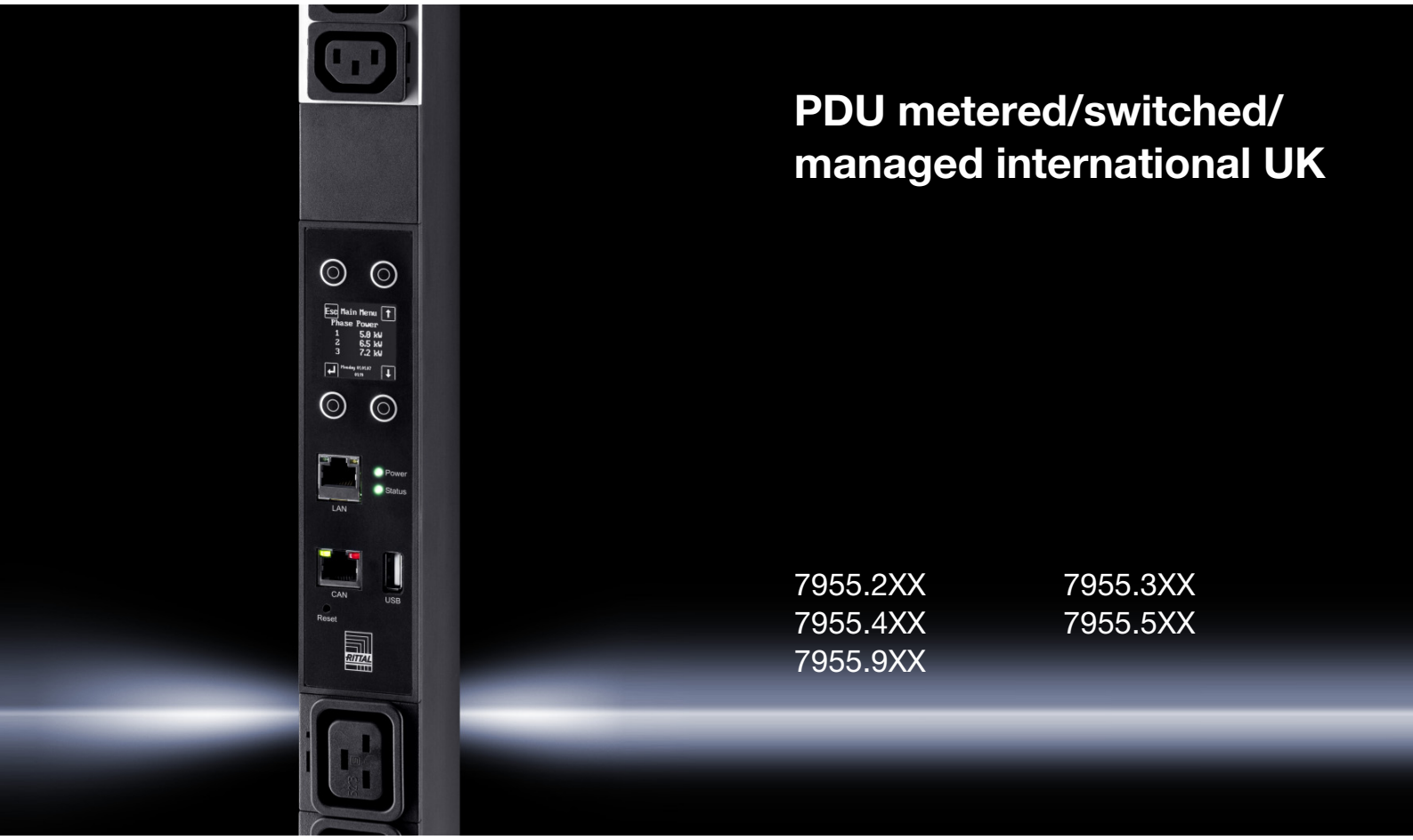

PDU metered/switched/ managed international UK

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7955.3XX
7955.4XX
7955.5XX
7955.9XX

Montage-, Installations- und Bedienungsanleitung
Assembly and operating instructions

EN

Foreword

Dear Customer!

Thank you for choosing a PDU international/PDU UK power distribution unit (hereafter referred to as "PDU") from Rittal!

We wish you every success.

Yours,
Rittal GmbH & Co. KG

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We are always happy to answer any technical questions regarding our entire range of products.

EN

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1 Notes on documentation

1.1 CE labelling

Rittal GmbH & Co. KG hereby confirms the conformity of its PDU international/PDU UK power distribution unit with the provisions of the following Directives:

– EMC Directive 2004/108/EC
– Low Voltage Directive 2006/95/EC
– RoHS2 Directive 2011/65/EU

An appropriate declaration of conformity has been issued and can be supplied on request.

CE

1.2 Storing the documents

The assembly, installation and operating instructions, as well as all other applicable documents, are an integral part of the product. They must be issued to everyone who works with the unit and must always be available and on hand for the operating and maintenance personnel.

1.3 Symbols used in these operating instructions

The following symbols are used in this documentation:

Danger!
A dangerous situation in which failure to comply with the instructions will result in death or severe injury.

Warning!
A dangerous situation which may lead directly to death or serious injury if the instructions are not followed.

Caution!
A dangerous situation which may lead to (minor) injuries if the instructions are not followed.

Note:
Identification of situations that can lead to material damage.

■ This symbol indicates an "Action Point" and shows that you should perform an operation/procedure.

1.4 Associated documents

– Installation Guide and Short User's Guide
– CMC III Processing Unit Assembly and Operating Instructions (7030.000)
– Temperature Sensor Assembly and Operating Instructions (7030.110)
– Temperature/Humidity Sensor Assembly and Operating Instructions (7030.111)
– Infrared Sensor Assembly and Operating Instructions (7030.120)
– Vandalism Sensor Assembly and Operating Instructions (7030.130)

EN

2 Safety notes

2.1 General safety instructions

Please observe the following general safety instructions for the installation and operation of the system:

– Assembly and installation of the PDU power distribution unit may only be performed by experienced, trained specialists.
– Please observe the valid regulations for electrical installation in the country in which the PDU is installed and operated, and the national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
– Use only original Rittal products or products recommended by Rittal in conjunction with the PDU power distribution unit.
– Please do not make any changes to the PDU that are not described in these assembly, installation and operating instructions or other associated manuals.
– The operational safety of the PDU is only warranted if used properly for the intended purpose. The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP protection category.
– The PDU must not be opened. It does not contain any parts that need servicing.
– Operating the system in direct contact with water, aggressive materials or inflammable gases and vapours is prohibited.
– Other than these general safety instructions, it is also essential to observe the specific safety instructions when carrying out the tasks described in the following chapters.

2.2 Operating and technical staff

– The assembly, installation, commissioning, maintenance and repair of this unit must only be performed by qualified mechanics and electricians.
– Only properly instructed personnel may work on a unit while in operation.

EN

3 Product description

3.1 Functional description

The PDU is a power distribution unit for use in IT racks. There are four design variants, with the following distinguishing features:

– PDU metered: Energy measurement at the infeed of each phase, i.e. output requirement of an entire IT rack; no switching function; with display and network interface.
– PDU switched: Energy measurement at the infeed of each phase, i.e. output requirement of an entire IT rack; with switching function per individual output slot; with display and network interface.
– PDU managed: Energy measurement and switching function for each individual output slot; with display and network interface.
– Slave PDU managed: Energy measurement and switching function per individual output slot (analogous to PDU managed); but without display and network interface, with CAN bus for connecting to a CMC III Processing Unit (7030.000/.010 from software version 3.13) or PDU metered/switched/managed (from software version 5.13).

3.2 Proper use, foreseeable misuse

The PDU is used for distributing power in IT racks.

The unit is state of the art and built according to recognised safety regulations. Nevertheless, improper use can pose a threat to the life and limb of the user or third parties, or result in possible damage to the system and other property.

Consequently, the unit must only be used properly and in a technically sound condition! Any malfunctions which impair safety should be rectified immediately. Follow the operating instructions!

Proper use also includes the observance of the documentation provided, and compliance with the inspection and maintenance conditions.

Rittal GmbH & Co. KG is not liable for any damage which may result from failure to comply with the documentation provided. The same applies to failure to comply with the valid documentation for any accessories used.

Inappropriate use may be dangerous. Examples of inappropriate include:

– Use of impermissible tools.
– Improper operation.
– Improper rectification of malfunctions.
– Use of accessories not approved by Rittal GmbH & Co. KG.

3.3 Supply includes

The scope of the PDU supply is shown in the following illustrations.

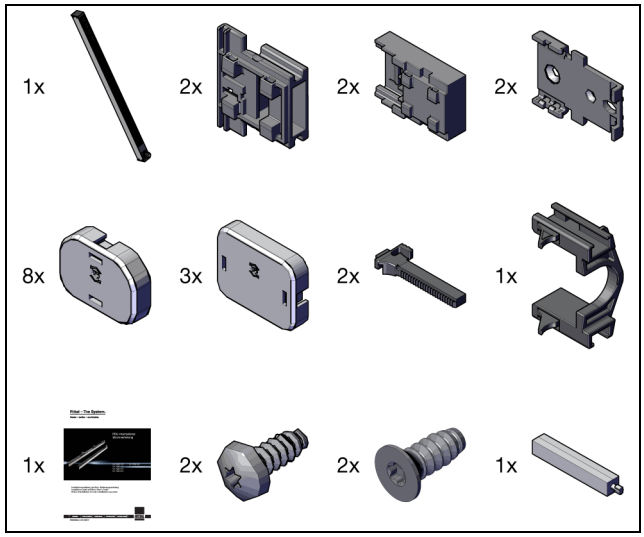

Fig. 1: Scope of supply PDU international

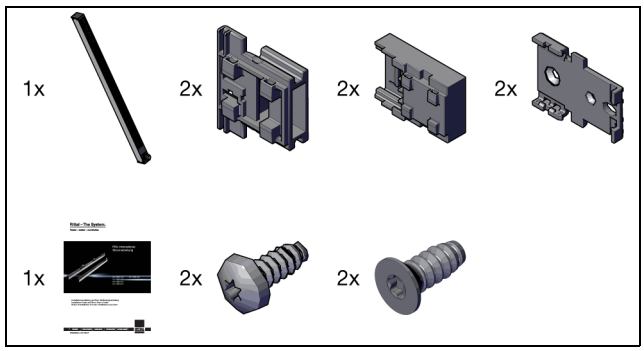

Fig. 2: Scope of supply PDU UK

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4 Transport and handling

4.1 Transport

The unit is delivered in a cardboard box.

4.2 Unpacking

- Remove the packaging materials from the unit.

Note:
After unpacking, the packaging materials must be disposed of in an environmentally friendly way. They consist of the following materials:
Polyethylene film (PE film), cardboard.

- Check the unit for any damage that may have occurred during transport.

Note:
Damage and other faults, e.g. incomplete delivery, should be reported immediately, in writing, to the shipping company and to Rittal GmbH & Co. KG.

- Take the unit out of the packaging.
- Remove the protective film from the front cover of the device.

EN

5 Installation

5.1 Safety notes

- Please observe the valid regulations for electrical installation in the country in which the PDU is installed and operated, and the national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
- The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP protection category.
- If a higher IP protection category is required for a special application, the PDU must be installed in an appropriate housing or in an appropriate enclosure with the required IP protection category.

5.2 Siting location requirements

To ensure correct functioning of the unit, the conditions for the installation site of the unit specified in section 14 "Technical specifications" must be observed.

Electromagnetic interference

– Interfering electrical installations (high frequency) are to be avoided.

5.3 Assembly procedure

Note:
Ensure good access to the front of the unit so that the display is easy to read.

The PDU is assembled using the brackets supplied loose as accessories. As a general rule, assembly may be carried out either from the front or back, or from the left or right of the IT rack.

Note:
Rittal recommends always attaching the brackets to the PDU first, and then securing the assembled unit to the inside of the enclosure, except with concealed assembly (fig. 11), where this is not possible. This means that the distances between the brackets and hence the mounting points inside the enclosure are pre-defined, allowing you to promptly identify any potential collisions of the PDU inside the enclosure.

5.3.1 Installation with the TS IT bracket

- First, attach the TS IT bracket to the top and bottom at the rear of the PDU.

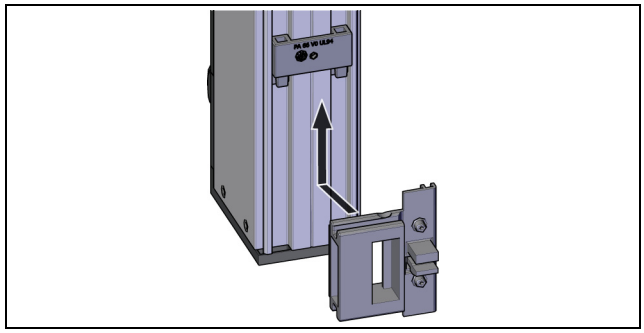

Fig. 3: Attach the TS IT bracket to the PDU

- Slide the entire PDU with the brackets into the required mounting position in the TS IT rack.

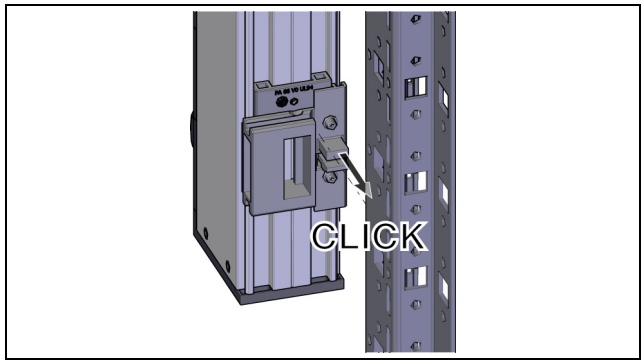

Fig. 4: Attach the PDU to the TS IT rack

- If necessary, click the TS IT extension onto the bracket if you wish to mount a second PDU on the same bracket in parallel.

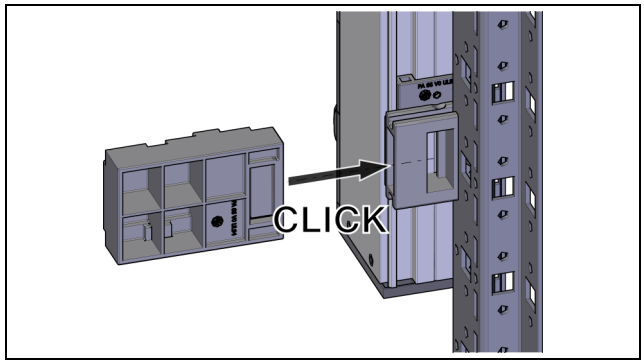

Fig. 5: Fit the extension to the TS IT bracket

- Locate the second PDU into the extension from above, parallel to the first PDU.

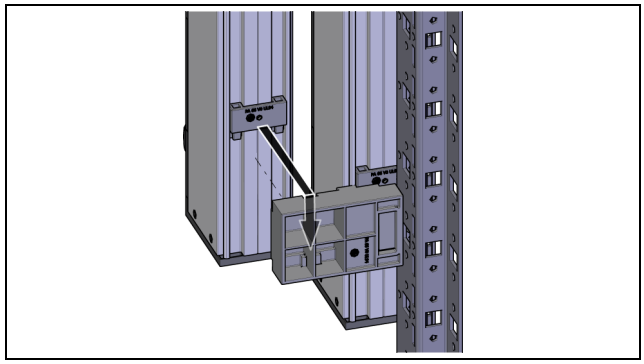

Fig. 6: Fit the second PDU in the extension

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5.3.2 Installation with the universal support

The universal support allows the PDU to be mounted on a TS 8 rack. The following options are available for installing the PDU with the aid of the universal support:

– Parallel installation
– Side installation
– Concealed installation

Parallel installation

■ First, attach the universal support to the rear of the PDU at the top and bottom so that the mounting hole in the support projects above and below the PDU and is accessible.

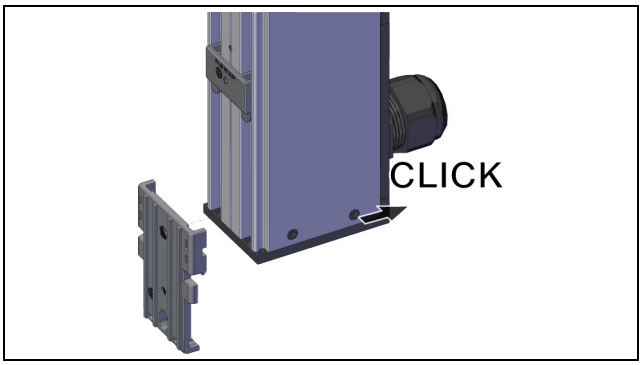

Fig. 7: Attach the universal support to the PDU

■ Screw the entire PDU with the supports into the required mounting position in the TS 8 rack.

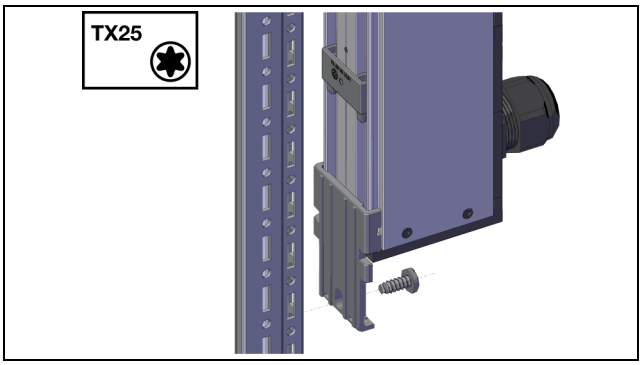

Fig. 8: Attach the PDU to the TS 8 rack

Side installation

■ First, attach the universal support to the rear of the PDU at the top and bottom so that the mounting hole in the support projects beyond the PDU at the sides and is accessible.
At the top, the universal supports must be supported by the clips securely mounted on the PDU to prevent the PDU from slipping downwards.

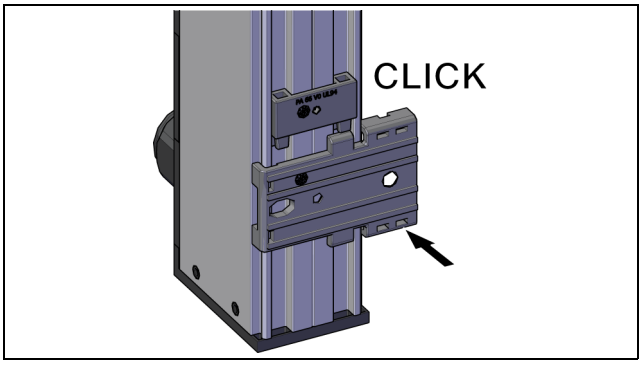

Fig. 9: Attach the universal support to the PDU

■ Screw the entire PDU with the supports into the required mounting position in the TS 8 rack.

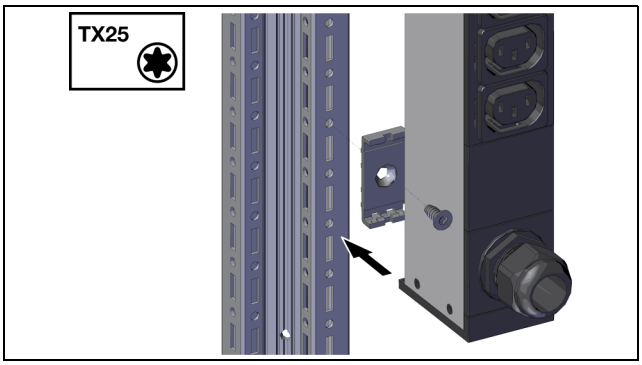

Fig. 10: Attach the PDU to the TS 8 rack

Concealed installation

For concealed installation, the universal supports must first be secured to the TS 8 rack and the PDU then attached to the universal supports in the rack.

■ First, screw the universal support to the TS 8 rack at the top and bottom.

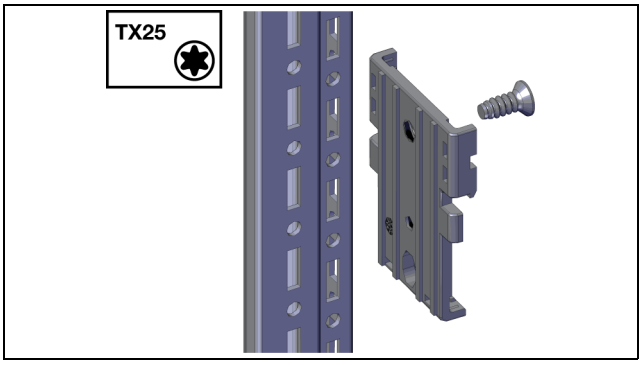

Fig. 11: Attach the universal support to the TS 8 rack

Note:
Select the mounting point (position and spacing) for the two universal supports inside the enclosure so that they cannot collide with the clips on the rear of the PDU.

■ Attach the PDU to the supports in the TS 8 rack.

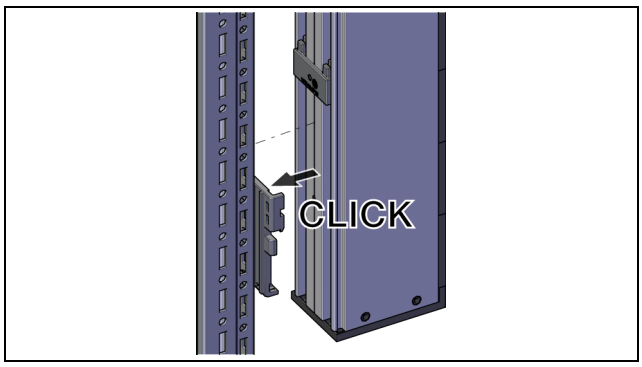

Fig. 12: Attach the PDU to the universal supports

5.4 Electrical connection of the PDU metered/switched/managed

5.4.1 Requirements concerning the electrical connection

- The electrical connection can only be made on a TN-S or TT network. Please note the detailed information in section 14 "Technical specifications".
- Depending on the PDU version, provide the following pre-fuse:
  - PDU international: 3 x 16 A (3~/16 A versions), 3 x 32 A (3~/32 A versions), 1 x 16 A (1~/16 A versions) or 1 x 32 A (1~/32 A versions)
  - PDU UK: 1 x 16 A (16 A versions) or 1 x 32 A (32 A versions)
  - PDU UK: 1 x 13 A for PDU with BS 1363 (UK) plug

5.4.2 Connecting to the mains supply

The PDU is connected to the mains supply using the permanently attached connection cable.

- Route the PDU connection cable out of the IT rack and connect it to the mains supply.

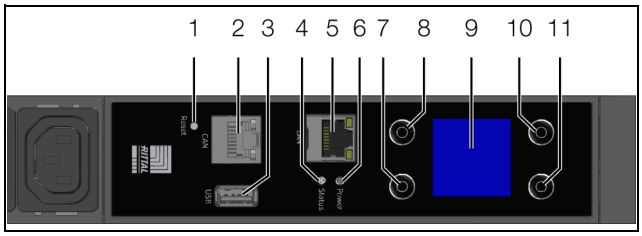

Fig. 13: Control and display elements and connections of the PDU metered/switched/managed

Key

1 Reset button for resetting the controller
2 CAN bus connection (daisy chain) for CMC III sensors, 24 V ⎓, max. 500 mA
3 USB connection for carrying out firmware updates and recording diagrams, log files and charts
4 Multi-LED for status display
5 Ethernet interface RJ 45
6 Green LED to indicate the power supply
7 "Down" or "Next" key
8 "Return" key
9 Display
10 "Esc" key
11 "Up" key

After connecting the PDU to the power supply, the green power LED (fig. 13, item 6) will be illuminated, and the PDU will start to boot automatically.
If connected to a network, the Link and Status LEDs on the RJ 45 jack will be illuminated (fig. 13, item 5).
After a few seconds, the multi-LED for status display will start to flash blue, indicating that booting is in progress (fig. 13, item 4).
For PDU switched and PDU managed: The Status LEDs on the slots will be activated simultaneously and then switched off again a few seconds later. Once booting is complete, the LEDs will indicate the current switching status of the relays (slot "on": LED shows green). There is no switching operation of the relays whilst booting is in progress; in its delivered state, all PDU slots are activated.

Note:
Booting is complete after around 2 minutes. Only then will the display appear, and the PDU can be operated and configured using the keys (see section 6.2 "Control and display elements"). Network access to the PDU is likewise only possible once booting is complete.

5.4.3 Connecting equipment

- Connect a connection cable from the Rittal accessories to a free slot on the PDU and the equipment.

Note:
When connecting equipment, please note the maximum load per PDU slot (C13: 10 A, C19: 16 A, UK version: 13 A).

- Secure the connection cable with a suitable cable attachment if necessary. To do so, first attach one bracket of the cable attachment into the PDU on both the left and right.

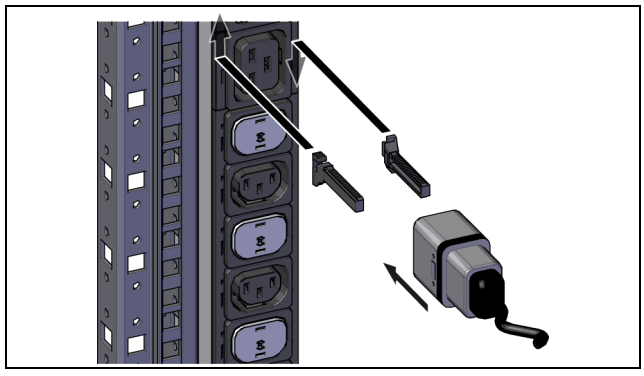

Fig. 14: Insert the brackets of the cable attachment

- Then, slide the cable attachment itself onto the brackets and in this way, secure the connector cable.

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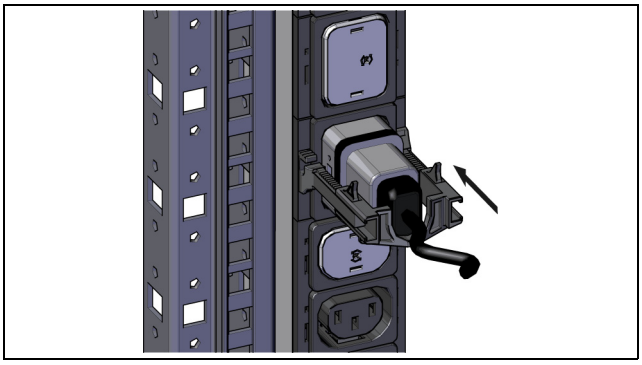

Fig. 15: Slide the cable attachment into place

- Depending on the PDU version, place C13/C19 covers on any slots that are not required.

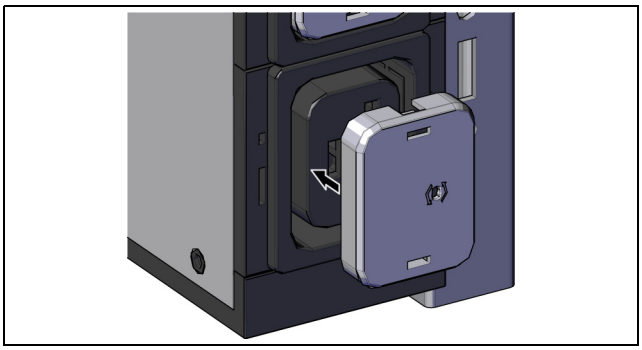

Fig. 16: Attach covers

- Secure the covers on the PDU using the Allen key enclosed with the supply.

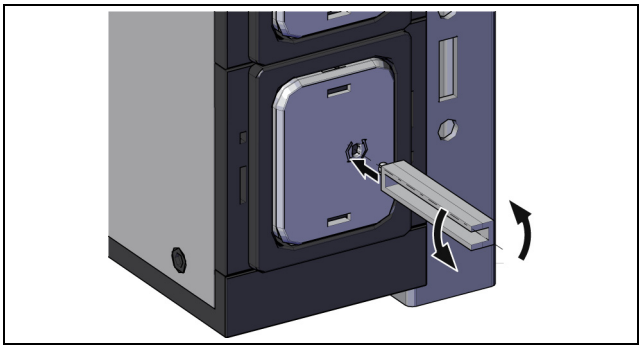

Fig. 17: Secure the covers

5.4.4 Further configuration

The subsequent commissioning, configuration and operation of the PDU metered/switched/managed is described in the following sections.

– Section 6 "Commissioning the PDU metered/switched/managed"
– Section 7 "Configuring the PDU metered/switched/managed"
– Section 8 "Operating the PDU metered/switched/managed"

The following sections 11 to 17 apply to all PDU variants.

5.5 Electrical connection of the slave PDU managed

Note:
The following sections apply analogously to the slave PDU managed as for the PDU metered/switched/managed:
– Section 5.4.1 "Requirements concerning the electrical connection"
– Section 5.4.3 "Connecting equipment"

5.5.1 Connecting to the mains supply

The PDU is connected to the mains supply using the permanently attached connection cable.

- Route the PDU connection cable out of the IT rack and connect it to the mains supply.

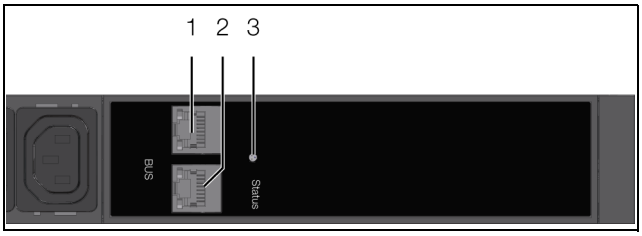

Fig. 18: Display elements and connections of the slave PDU managed

Key

1 CAN bus connection (daisy chain) for CMC III Processing Unit and CMC III sensors, 24 V ⎓, max. 500 mA
2 Second CAN bus connection, 24 V ⎓, max. 500 mA
3 Multi-LED for status display

Once connected, the multi-LED for the status display shows a steady green light (fig. 18, item 3). The LEDs of the CAN bus connections (fig. 18, items 1, 2) will flash green or red.

5.5.2 Connecting to a CMC III Processing Unit

Note:
Below, we describe the connection of the slave PDU managed to a CMC III Processing Unit. The slave PDU managed may also be connected in the same way to a PDU metered/switched/managed.

- Use a CAN bus connection cable to connect the slave PDU to a CAN bus interface on the CMC III Processing Unit or the neighbouring component on the CAN bus (fig. 18, item 1).
  The slave PDU managed will be restarted and will then log on to the CMC III Processing Unit.

The following CAN bus connection cables from the CMC III accessories range may be used:

– 7030.090 (length 0.5 m)
– 7030.091 (length 1 m)
– 7030.092 (length 1.5 m)
– 7030.093 (length 2 m)

– 7030.480 (length 3 m)
– 7030.490 (length 4 m)
– 7030.094 (length 5 m)
– 7030.095 (length 10 m)

The software of the slave PDU managed is updated, if necessary, following connection. The status LED of the slave PDU managed will show a steady blue light throughout the entire update process and also flashes purple while the PDU itself is being updated.
In addition, the status LED of the CMC III Processing Unit flashes white and a corresponding message appears on the website.

Note:
No settings can be made as long as the update process is running.

The update of the PDU is complete when the following conditions have been fulfilled:

1. The LEDs on the CAN bus connection of the PDU are illuminated green.
2. The multi-LED of the PDU flashes blue and is also illuminated green, yellow or red, depending on the PDU status.

Further components are connected as a daisy chain.

- If necessary, connect another component (e.g. another sensor type) to the second, free CAN bus interface of the slave PDU managed (fig. 18, item 2).
  Status change display:
  – The two green and the two red CAN bus LEDs on the CAN bus connection flash.
  – The multi-LED of the Processing Unit or PDU metered/switched/managed flashes continually in the sequence green – yellow – red.
  – The multi-LED of the slave PDU managed flashes blue continuously.

Note:
See section 9.3.1 "Multi-LED displays" for a list of all of the multi-LED displays.

- Press the "C" button on the CMC III Processing Unit (an initial audio signal will sound) and keep it pressed for approx. 3 seconds until a second audio signal is heard.
  Alternatively, you can also acknowledge messages from the slave PDU managed via the CMC III Processing Unit website (see assembly, installation and operating instructions for the CMC III Processing Unit).

Note:
On a PDU metered/switched/managed, messages from the slave PDU managed can only be acknowledged via the website.

5.5.3 Further configuration

The subsequent commissioning and operation of the slave PDU managed is described in the following sections.
– Section 9 "Commissioning the slave PDU managed"
– Section 10 "Operating the slave PDU managed"
The following sections 11 to 17 apply to all PDU variants.

EN

6 Commissioning the PDU metered/switched/managed

6.1 Switching on the PDU

Once the electrical connection has been established, the PDU will start automatically (see section 5.4 "Electrical connection of the PDU metered/switched/managed"). Separate activation is not required.

6.2 Control and display elements

The control and display elements are shown in fig. 19. The display direction and the assignment of the four keys at the side of the display will depend on the installation direction of the PDU. The key to fig. 19 shows the key assignment where the PDU is installed with the electrical connection at the bottom. If the PDU is installed with the electrical connection at the top, the assignment of keys 7 and 10 as well as 8 and 11 is reversed. The actual assignment of the keys is shown correctly on the display.

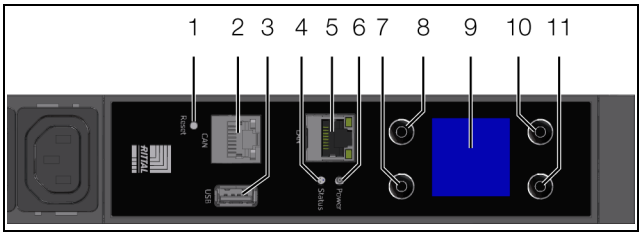

Fig. 19: Control and display elements and connections of the PDU metered/switched/managed

Key

1 Reset button for resetting the controller
2 CAN bus connection (daisy chain) for CMC III sensors, 24 V ⎓, max. 500 mA
3 USB connection for carrying out firmware updates and recording diagrams, log files and charts
4 Multi-LED for status display
5 Ethernet interface RJ 45
6 Green LED to indicate the power supply
7 "Down" or "Next" key
8 "Return" key
9 Display
10 "Esc" key
11 "Up" key

6.3 LED displays

A multi-LED for status display is integrated into the front of the PDU (fig. 19, item 4). Further LEDs are also located on the CAN bus connection (fig. 19, item 2) and on the Ethernet interface (fig. 19, item 5).

6.3.1 Multi-LED displays

Continuous illumination of the multi-LED indicates the status of the PDU and of the connected components.

Colour	Status
Green	All devices connected to the CAN bus have the status "OK".
Orange	At least one device connected to the CAN bus has the status "Warning".
Red	At least one device connected to the CAN bus has the status "Alarm".

Tab. 1: Multi-LED continuous light

The flashing code of the multi-LED indicates a status change in the PDU:

Colour	Status
Cyclically green – orange – red	At least one new device was detected on the CAN bus ("Detected" status).
Alternating red – blue	At least one device has been removed from the CAN bus or can no longer be detected via the CAN bus ("Lost" status).
Blue	The position of at least one device on the CAN bus has been altered (status "Changed").
Red	Update task in progress (so-called heartbeat, alternating long and short).
White	Update task of one or more sensors in progress.

Tab. 2: Multi-LED flashing codes

6.3.2 LED displays on the CAN bus connection

A red and a green LED are located on the CAN bus connection. They display the status of the CAN bus.

Colour	Status
Green (continuous light)	Communication via the CAN bus possible.
Red (flashing)	Transmission error.

Tab. 3: LEDs on the CAN bus connection

6.3.3 LED displays on the Ethernet interface

There is a green and an orange LED on the Ethernet interface They display the status of the network connection.

Colour	Status
Green (continuous light)	Communication via the Ethernet interface possible.
Orange (flashing)	Data communication interval via the network.

Tab. 4: LEDs on the Ethernet interface

6.4 Acknowledging messages

Generally speaking, messages can be acknowledged in two ways:

1. By right-clicking a message in the message display and left-clicking on the "Acknowledge Alarm" or "Acknowledge Devices" entry in the context menu.
   If an alarm message has been selected, "Acknowledge Alarm" only confirms the currently selected message.
   If a message concerning a configuration change has been selected, "Acknowledge Devices" confirms all related messages jointly.
2. By right-clicking on a component entry in the Configuration area and left-clicking on the "Acknowledge Alarms" or "Acknowledge All Devices" entry in the context menu.
   This will confirm active alarm messages for that particular component or all configuration changes.

Messages that are displayed by connecting additional sensors may also be confirmed directly on the PDU in the **Acknowledge Sensors** sub-menu.

EN

7 Configuring the PDU metered/ switched/managed

7.1 General information

Basic configuration of the PDU, especially the (one-off) customisation of the network settings, can be performed in several ways:

1. HTTP connection via the Ethernet interface
2. Display and control components directly on the PDU

Settings are usually made via an HTTP connection. For this purpose, the IP address of the PDU must be known. If this address is not known, the device may be accessed directly using the display and the control components directly on the PDU.

The following descriptions assume that the PDU is in its delivered state, i.e. no changes have been made to the basic configuration. In particular, the connection type "HTTP" must not be blocked.

7.2 HTTP connection

7.2.1 Establishing the connection

- Using a network cable, connect the device to your computer via the Ethernet interface (fig. 19, item 5).

Note:
Depending on your computer, you may need to use a crossover cable.

- Change your computer's IP address to any address within the range 192.168.0.xxx, e.g. **192.168.0.191**. The default address **192.168.0.200** of the device must not be used.
- Set the subnet mask to the value **255.255.255.0**.
- If applicable, switch off the proxy server in the browser to enable a direct connection to the device.
- In the browser, enter the address **http://192.168.0.200** (fig. 20, item 1). The logon dialog for logging on to the device will be displayed.

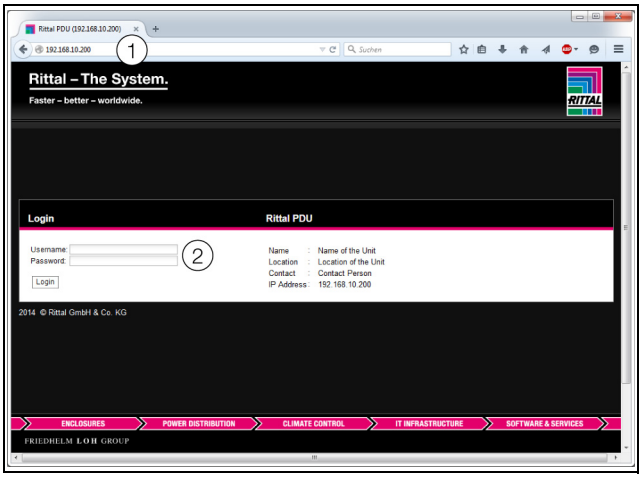

Fig. 20: Logon screen with an HTTP connection

- Log in with the username **admin** and the password **admin** (fig. 20, item 2).
- Click the Login button to display the website of the device.

The overview window for the device will appear (fig. 21).

7.2.2 Changing the network settings

Generally speaking, you will customise the network settings of the PDU once during commissioning, to link it into your network structure.

- In the left-hand section of the overview window (navigation area), click the **Processing Unit** entry (fig. 21, item 3), and in the right-hand section (configuration area), click the **Configuration** tab (fig. 21, item 4).

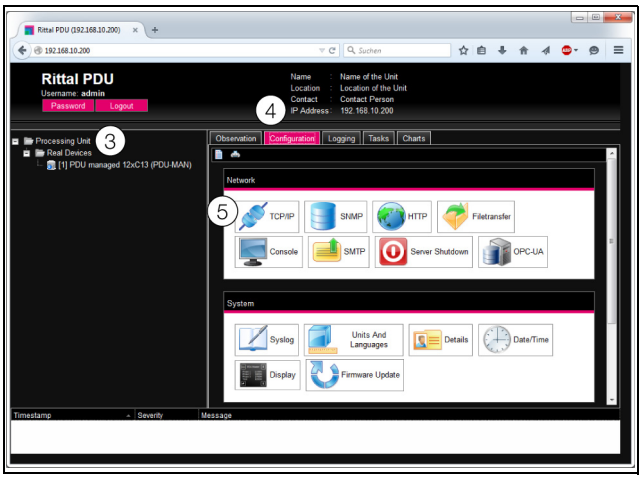

Fig. 21: Customise the TCP/IP settings

- In the **Network** group box, click on the **TCP/IP** button (fig. 21, item 5).

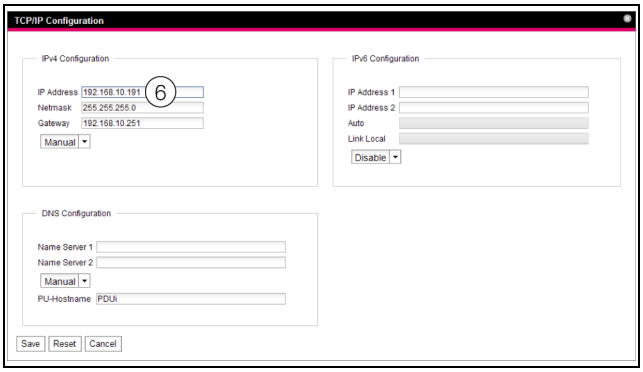

Fig. 22: Customise the TCP/IP settings

Note:
The following sections describe in detail how to make the setting for the IPv4 protocol. Further information regarding the TCP/IP configuration may be found in section 8.5.1 "TCP/IP configuration".

- In the **TCP/IP Configuration** window, change the device's IP address in the **IPv4 Configuration** group box to an address permitted in the network (fig. 22, item 6).

- If necessary, correct the settings for the subnet mask and the gateway.
- Alternatively, select the "DHCPv4" setting instead of "Manual" for automatic IP allocation.
  To this end, there must be a DHCP server available in the network to administer and assign the addresses.
- Click on **Save** to save your settings.

Note:
If the **Save** button cannot be clicked, an incorrect input has been made (see section 8.2.5 "Other displays"). In this case, check your entries and correct as necessary.

- Change the network settings of your computer to the original values of the IP address and the subnet mask.
- Disconnect the network cable from your computer.
- Connect the PDU to your Ethernet LAN with a network cable (fig. 19, item 5).

Note:
If you have activated the automatic IP assignment ("DHCPv4" setting is activated), you can view the IP address of the PDU directly on the display (see section 7.4 "Operating using the control components on the front").

7.2.3 Settings

All other possible PDU settings are described in section 8 "Operating the PDU metered/switched/managed".

7.3 Telnet/SSH connection

A Telnet connection can be made using a suitable utility program such as "PuTTY".

7.3.1 Establishing the connection

Below, we describe how to establish a connection using the utility program "PuTTY".

- Launch the "PuTTY" program.
- Enter the IP address of the PDU, default "192.168.0.200", in the **Host address (or IP address)** field.
- Select the option "Telnet" as the **Connection Type**. Port number "23" is now displayed in the **Port** field.
- If applicable, enter a name for the connection such as "PDU Telnet" in the **Saved Sessions** field.
- Click on **Save** to save your settings.

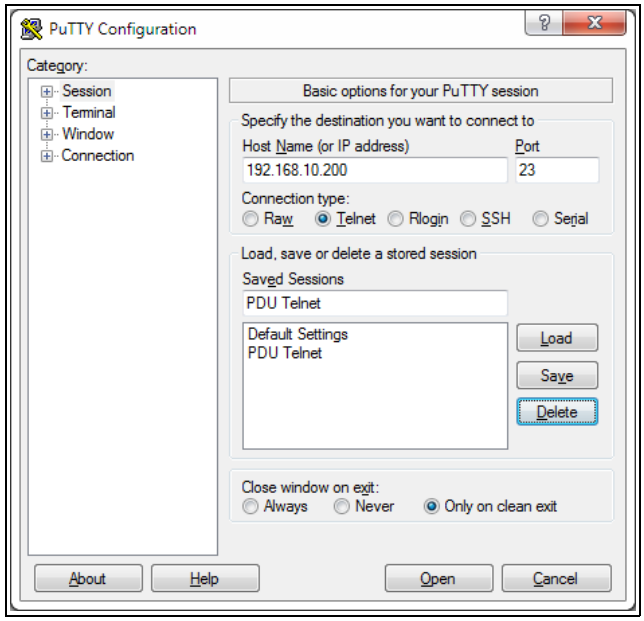

Fig. 23: Connection setting "PDU Telnet"

- Click **OK** to establish the connection.
  The logon screen appears.

Fig. 24: Logon screen

7.3.2 Log on to the PDU

Once the connection has been established, the logon screen appears.

- In the line **login as:** enter your user name.
- In the line **Password:** enter the associated password.

Note:
The user "admin" with the password "admin" and the user "pdu" with the password "pdu" are the factory default settings.

The **Main Menu** will appear.

EN

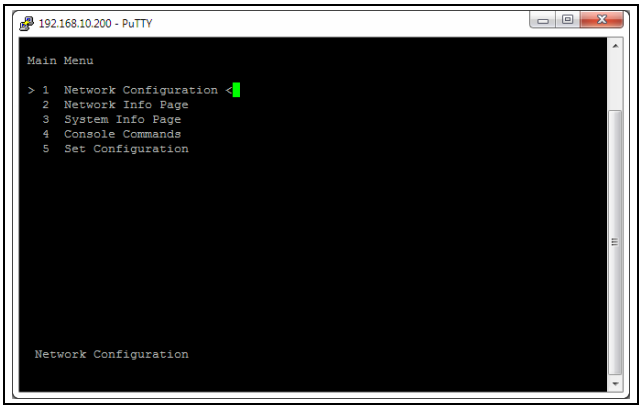

Fig. 25: Main Menu

7.3.3 Menu structure

A Telnet connection can be used to make the basic PDU settings using the following menu structure:

1	Network configuration		
	1	IPv4 configuration	
		1	IPv4 address
		2	IPv4 subnet mask
		3	IPv4 gateway
		4	Enable/disable DHCPv4
	2	IPv6 configuration	
		1	IPv6 address 1
		2	IPv6 address 2
		3	IPv6 configuration
	3	DNS configuration	
		1	DNS server 1
		2	DNS server 2
		3	DNS mode
		4	Host name
	4	LDAP configuration	
		1	LDAP server
		2	Enable/disable LDAP
	5	Ethernet port settings	
	6	System name	
	7	System contact	
	8	System location	
	9	Actual date	
	A	Actual time	
	B	Security	
		1	Change user password
		2	Enable web access
		3	Change HTTP port
		4	Change HTTPs port
	C	Reboot unit	
2	Network info page		
3	System info page		
4	Console commands		
	1	Command (by DescName)	
	2	Command (by VariableName)	
	3	RS232 console	
5	Set configuration		
	1	Set general configuration to default	

You can also use the PDU website to access most of the parameters that can be accessed using the Telnet connection. The corresponding descriptions may be found in section 8 "Operating the PDU metered/switched/managed". Only the few settings that are not available via the website are described in section 7.4.5 "Special settings and remarks".

7.3.4 Navigating through the menu structure

The individual menu items are selected with the number that precedes each menu item.

Starting at the **Main Menu**, for example, it is possible to select the following three sub-menus:

– Key "1": **Network Configuration** sub-menu
– Key "2": **Network Info Page** sub-menu
– Key "3": **System Info Page** sub-menu
– Key "4": **Console Commands** sub-menu
– Key "5": **Set Configuration** sub-menu

Alternatively, you can use the "arrow" keys, the "Return" key and the "Esc" key to navigate through the menus.

7.3.5 Entering values

The stored parameter values are shown in pointed brackets, ">" and "<", at the end of each line. To change a value, as when navigating through the menu structure, select the appropriate parameter using the associated number. To accept a changed value, you must always press the "Esc" key.

Example 1: Changing the network settings for IPv4

■ In the **Main Menu**, press key "1" to select the **Network Configuration** sub-menu.

- Press key "1" again to select the **IPv4 Configuration** sub-menu.
- Press key "1" again to select the **IPv4 Address** parameter.
- Clear the default address stored there and enter instead a valid network address.
- Press "Return" to confirm your selection.
  The entered address is displayed accordingly at the end of the line.
- Press the "Esc" key to exit the **IPv4 Configuration** menu.

If access to the device was made via Telnet, changing the IP address means that initially no further communication via the HyperTerminal is possible.

- First terminate the current connection.
- Establish a new connection with the changed IP address.

Example 2: Changing the name of the contact person

- In the **Main Menu**, press key "1" to select the **Network Configuration** sub-menu.
- Press key "7" to select the **System Contact** parameter.
- Enter the name of the required contact person, e.g. **Contact person PDU**.
- Press "Return" to confirm your selection.
  The entered name is displayed accordingly at the end of the line.
- Press the "Esc" key again to exit the **Network Configuration** menu.

Note:
If after changing a value you switch to another sub-menu, the value is **not** accepted.

7.3.6 Special settings and remarks

The following settings are not available on the website but only via a Telnet connection.

Parameter	Explanation
Set general configuration to default	Reset all PDU settings to the factory status (**Main Menu** > "5" **Set Configuration** > "1" **Set General Configuration to Default**).
Reboot unit	Restart PDU (**Main Menu** > "1" **Network Configuration** > "C" **Reboot Unit**).
Console command	Execute switch commands for the PDU outputs (**Main Menu** > "4" **Console Commands**). Entry "3" **RS232 Console** has no function. Detailed instructions in this regard may be found in section 7.3.7 "Performing switch commands".
Ethernet port settings	Set the transmission speed and the duplex procedure or auto-negotiation for the PDU network interface.

Tab. 5: Special settings

If you use a Telnet connection to select the **Automatic DHCP** value for the **DNS mode** parameter in the **DNS configuration** sub-menu, please note the following:

- In the **IPv4 Configuration** sub-menu, set the value **Enabled** for the **Enable/Disable DHCPv4** parameter.
- Alternatively or additionally, set the value **DHCPv6** in the **IPv6 Configuration** sub-menu for the **IPv6 Configuration** parameter.
- Under no circumstances should you retrospectively deactivate DHCP for **both** protocols IPv4 and IPv6 once you have implemented the above DNS configuration.

7.3.7 Performing switch commands

A user with admin rights can switch the outputs of a PDU metered/managed via a Telnet connection.

- In the **Main Menu**, press key "4" to select the **Console Commands** sub-menu.

You can now activate an output using either the name (DescName) assigned to the relay output or the complete variable name.

Note:
The following representation shows a selection from the website and is merely intended to explain the "DescName", "VariableName" and "Command" terms.

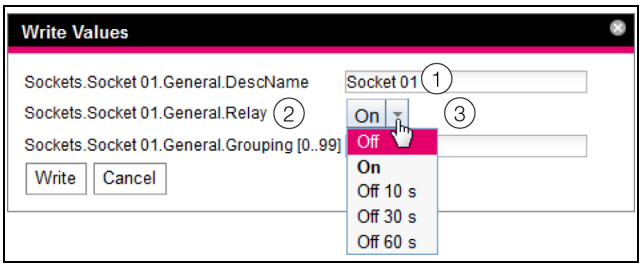

Fig. 26: Performing switch commands

Key

1 DescName
2 VariableName
3 Command

Switching using the assigned name

- Press key "1" to select the **Command (by DescName)** command.
- Enter the command in the format "Device.DescName:Command".

Parameter	Explanation
Device	The device index (ID number) that is prefixed to the associated Real Device in the navigation area of the PDU website
DescName	Individual description that was assigned to the output or socket (fig. 26, item 1).
Command	The command to be performed. The following commands are supported: "Off", "On", "Off 10 s", "Off 30 s", "Off 60 s" (fig. 26, item 3).

Tab. 6: Parameters (switching using the assigned name)

■ Confirm your input (e.g. "1.Socket 1:Off") with Return.

If the switching command has been executed successfully, an appropriate message will be displayed (e.g. "Device 1.Output 'Socket 01' switched to 'Off'"). If an error has occurred, an error message will be displayed (e.g. "Output 'Socket 24' not found").

Switching using the complete variable name

■ Press key "2" to select the **Command (by VariableName)** command.

■ Enter the command in the format "Device.VariableName:Command".

Parameter	Explanation
Device	The device index (ID number) that is prefixed to the associated Real Device in the navigation area of the PDU website (fig. 26, item 2).
VariableName	The variable name of the output or socket, comprised of three components, each separated by a dot.
Command	The command to be performed. The following commands are supported: "Off", "On", "Off 10 s", "Off 30 s", "Off 60 s" (fig. 26, item 3).

Tab. 7: Parameters (switching using the complete variable name)

■ Confirm the input (e.g. "1.Sockets.Socket 01.General.Relay:Off") with Return.

If the switching command has been executed successfully, an appropriate message will be displayed (e.g. "Device 1.Output 'Sockets.Socket 01.General.Relay' switched to 'Off'"). If an error has occurred, an error message will be displayed (e.g. "Output 'Sockets.Socket 01.General.Relay' not found").

7.3.8 Logging off from the PDU

Once you have performed all the required settings on the PDU, log off again. To do this:

■ Press the "Esc" key repeatedly until you return to the **Main Menu**.

■ Press the "Esc" key again. The following message appears at the lower screen edge:
Logout? [Y = Yes]

■ Press the "Y" key to log off.

■ Press any other key if you do not want to log off.

7.4 Operating using the control components on the front

The following descriptions apply to access via the control components and display directly on the PDU. Access via the PDU website is described in section 8 "Operating the PDU metered/switched/managed".

7.4.1 Menu structure

Basic PDU settings can be made using the control components and the display based on the following menu structure:

Rittal menu		
	Data	
		P1
		P2
		P3
		Total
		Sensor/Slave
	Setup	
		IP Configuration
		Sensors
		Display
		PDU Infopage

Note:
The **Sensor/Slave** menu is only displayed if sensors are connected to the PDU.

You can also use the PDU website to access most of the parameters that can be accessed via the control components directly on the PDU. Corresponding descriptions may be found in section 8 "Operating the PDU metered/switched/managed". Only the few settings that are not available via the website are described in section 7.4.5 "Special settings and remarks".

7.4.2 Navigating through the menu structure

The individual menu points are selected using the "Down" (fig. 19, item 7) and "Up" arrows (fig. 19, item 11). You can switch between the individual menu levels with the "Esc" (fig. 19, item 10) and "Return" keys (fig. 19, item 8).

Starting at the **Setup** menu, for example, you can select the following four sub-menus:
– **IP Configuration** sub-menu
– **Sensors** sub-menu
– **Display** sub-menu
– **PDU Infopage** sub-menu
From the **IP Configuration** menu, you can switch back to the **Rittal** main menu by pressing the "Esc" key twice.

7.4.3 Entering the PIN

A PIN must be entered in order to access the sub-menus of the **Setup** menu. The prompt "Please Enter PIN" will appear automatically when one of the sub-menus is selected

- Keep pressing the "Up" arrow (fig. 19, item 11) until the required digit is displayed in the first position of the PIN.
- Press the "Next" key (fig. 19, item 7) to move to the second position of the PIN.
- Once again, keep pressing the "Up" arrow until the required digit is displayed in the second position of the PIN.
- Move to the third and fourth positions of the PIN and set them in the same way.

Note:
"1221" is the preset PIN for accessing the configuration menu. This PIN can be modified via the PDU website.
- Make a note of the new PIN number and keep it somewhere safe.

- Finally, press the "Return" key (fig. 19, item 8).
  The previously selected sub-menu will appear.

Note:
The PIN entry will not be saved. This means that the PIN must be entered every time a sub-menu is activated.

7.4.4 Entering values

The stored parameter values are generally displayed below the respective line with the name of the parameter. To change a value, in the same way used for navigating through the menu structure, select the appropriate parameter using the "Down" and "Up" arrows. To accept a changed value, you must always press the "Return" key.
Example: Changing the network settings for IPv4

- If the display is switched off: Press any key. A menu will appear showing the power per phase.
- Press the "Esc" key (fig. 19, item 10) to display the **Rittal** main menu.
- Use the "Down" or "Up" arrows to select the "Setup" entry.
- Confirm your selection with "Return". The **Setup** menu will appear.
- Use the "Down" or "Up" arrows to select the "IP Configuration" entry.
- Confirm your selection with "Return". The menu for entering your security PIN will appear.
- Enter the PIN to access the sub-menu (see section 7.4.3 "Entering the PIN").
  The **IP v4 Settings** menu will appear. The "*" symbol marks the current DHCP setting.
- Use the "Down" or "Up" arrows to select "OFF" for the "DHCP Settings" entry. This will now appear on a white background.
- Confirm your selection with "Return". Page 1/3 of the **IP v4 Settings** sub-menu will appear.
- In the same way as you entered the PIN, enter an IPv4 address permitted in the network for the "Set IP Address" entry.
- Confirm your selection with "Return".
- On pages 2/3 and 3/3 of the **IP v4 Settings** sub-menu, correct the settings for the subnet mask and gateway, if necessary.
  Finally, a page will appear showing all the settings collectively.
- Confirm your entries with "Return" to save your changes to the network settings. The **Setup** menu will appear.

Note:
Your changes to the network settings IP address, subnet mask and gateway will only be saved if you confirm the gateway setting with "Return".
For example, if only the IP address is confirmed with "Return", and the menu for setting the subnet mask is then exited by pressing the "Esc" key, the new IP address will not be saved.

7.4.5 Special settings and remarks

The following settings in the **Display** sub-menu are not available on the website but only via the control components and the display directly on the PDU.

Parameter	Explanation
Language	Change the display language between English, German and French.
Contrast	Set the contrast for the display in a range between "0" and "100" (in increments of 10).

Tab. 8: Special settings

Parameter	Explanation
Rotate	In the default setting "Auto", the display direction and key assignment will change depending on the direction in which the PDU is installed. The display direction and key assignment may be predefined regardless of the installation direction using the values "0", "90", "180" and "270".
Timeout	Duration in seconds after which the display will switch off. The display switches back on when any key is pressed.

Tab. 8: Special settings

EN

8 Operating the PDU metered/ switched/managed

8.1 General information

This chapter describes all the settings available via HTTP access.

8.2 General operation

8.2.1 Layout of the screen pages

After logging on to the PDU (see section 7.2.1 "Establishing the connection"), the Web user interface for operating the device is displayed. In principle, the screen is divided into four sections:

1. Top section: Display general information about the device, change the password and log off the current user (see section 8.2.7 "Logging off and changing the password").
2. Left-hand section (navigation area): Select the overall system or respective component for which information is displayed in the right-hand section of the screen (see section 8.2.2 "Left-hand navigation area").
3. Right-hand section (configuration area): Display three tabs (see section 8.2.3 "Tabs in the configuration area") with input options for all settings.
4. Bottom section: Display messages (see section 8.2.4 "Message display").

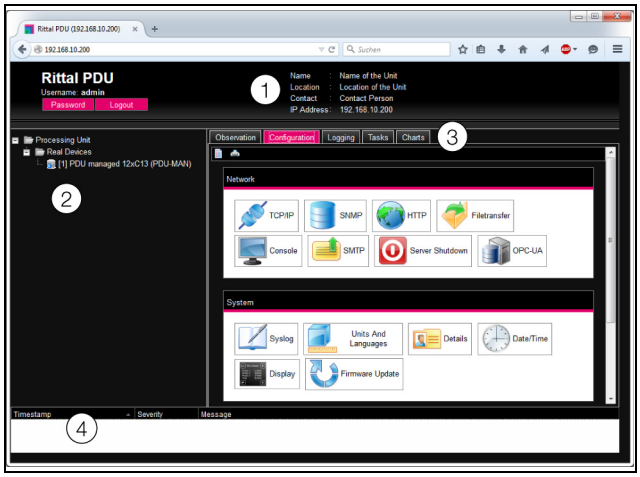

Fig. 27: Layout of the screen pages

Key

1 General information
2 Navigation area
3 Configuration area with tabs
4 Message display

8.2.2 Left-hand navigation area

The complete system, including all installed components, is displayed as a tree structure in the navigation area of the screen.

The Processing Unit, namely, the complete system, is located at the top of the navigation area. A sub-group Real Devices is displayed below the overall system. The PDU iself as well as all hardware-installed devices and sensors are listed in this group.

Each device can assume different statuses. To allow rapid identification of the current status, the symbol preceding the respective device is colour-coded:

Symbol	Explanation
	Status "OK". There are no warnings or alarm messages.
	Status "Warning". There is at least one warning message.
	Status "Alarm". There is at least one alarm message.
	Status "OK". The additional information symbol indicates that further status information may be displayed. This symbol is displayed only when the logged-in user has at least read access to the data of the associated device (see section 8.8 "Device Rights").
	Status "Detected". The sensor has recently been added and not yet confirmed. This sensor must still be confirmed via the **Acknowledge Sensors** sub-menu, either directly on the PDU or on the website.
	Status "Lost". Communication with a sensor is no longer possible. The connection must be checked. Alternatively, the sensor can also be logged off by confirming.
	Status "Changed". The sequence of sensors has been altered and not yet confirmed. This configuration change must still be confirmed via the **Acknowledge Sensors** sub-menu, either directly on the PDU or on the website (see section 6.4 "Acknowledging messages").

Tab. 9: Symbols for the status display

8.2.3 Tabs in the configuration area

Five tabs are displayed in the right-hand area of the screen:

1. Observation: The current data for the PDU or connected devices (see section 8.3 "Observation index tab").
2. Configuration: Configuration of basic settings (see section 8.4 "Configuration index tab").
3. Logging: The message archive for the PDU or connected devices (see section 8.10 "Logging").
4. Tasks: Creating links between different values and related actions (see section 8.11 "Tasks")
5. Charts: Diagrams showing the development of variables over time (see section 8.12 "Charts").

The content of the **Observation** and **Configuration** tabs depends on whether the complete system ("Processing Unit" entry) or an individual component, e.g. "Master PDU" entry, has been selected in the left-hand area of the screen page.

EN

8.2.4 Message display

Current pending messages are displayed in the bottom section of the screen. The message display is structured as follows:

1. Timestamp: The date and time when the error occurred (fig. 28, item 1).
2. Severity: Severity of the error. A distinction is made between Warnings and Alarms (fig. 28, item 2).
3. Message: Error message in plain language (fig. 28, item 3).

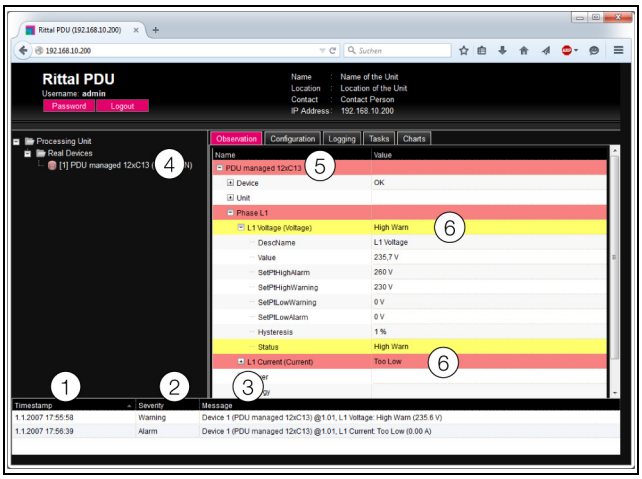

Fig. 28: Layout of message display

Key

1 Date and time
2 Error category
3 Error message in plain language
4 Component with error message
5 Component
6 Parameter

Additionally, errors occurring are displayed as follows:

– Left-hand section (navigation area): In the navigation area, the symbol preceding the component where the error occurred appears red in the event of an alarm message and yellow in the event of a warning message (fig. 28, item 4).
– Right-hand section (configuration area): On the **Observation** index tab, the entire component and the specific parameter to which the warning or alarm applies appears red or yellow (fig. 28, items 5 and 6).
– The multi-LED on the front of the PDU is permanently illuminated red or orange.

Once the cause of an error message has been rectified, the corresponding message may be automatically deleted from the message display. The status of the respective component may also be reset, and all other displays triggered by the error may disappear. However, this depends on the selected alarm configuration (see section 8.9 "Alarm configuration"). In some cases, error messages and the status may remain in the overview until the messages have been acknowledged (see section 6.4 "Acknowledging messages").

If the device configuration is permanently altered, e.g. a new sensor is connected to the PDU, this is likewise output in the message display as an "Alarm" type error message. Additionally, in such cases, the multi-LED on the front of the PDU will cyclically flash green – orange – red. Such configuration changes are not deleted from the message display until confirmed by the operator (see section 6.4 "Acknowledging messages").

Example: Increased voltage level

If the PDU measures a voltage above the value stored as "SetPtHighWarning", a warning message will be emitted.

In such cases, the display will change as follows:

– The symbol preceding the Master PDU component in the navigation area is coloured yellow.
– On the **Observation** index tab, the lines "Value" and "Status" at level "L1 Voltage" are shown on a yellow background, together with all levels above this. The "High Warn" warning message will also be emitted.
– A corresponding warning message will appear in the message display.

When the voltage falls back below the "SetPtHighWarning" value plus the hysteresis value (see section 16 "Glossary"), the alarm configuration will determine whether or not the message is automatically deleted from the message display and the associated status displays are reset (see section 8.9 "Alarm configuration").

8.2.5 Other displays

The operator's entries in the Web interface are automatically checked against preset rules, depending on the parameter entered. This means that changes can only be saved if all values have previously been correctly entered in a dialog.

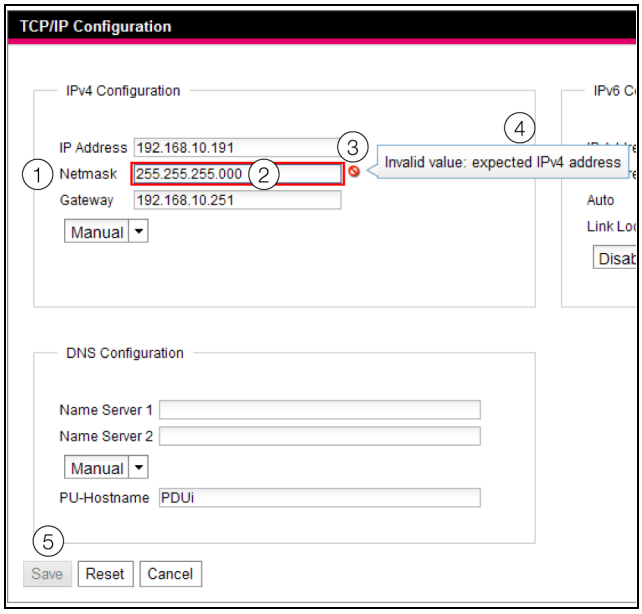

Fig. 29: Display of an incorrect entry

Key

1 **Netmask** field
2 Incorrect entry
3 Prohibited symbol
4 Note
5 Inactive button

The following changes occur in case of an incorrect entry in the dialog (illustrated here by the example of an incorrectly entered IP address):

– A red "prohibited symbol" (fig. 29, item 3) appears after the incorrect entry (fig. 29, item 2) in the **Netmask** field (fig. 29, item 1).
– By hovering over the prohibited symbol with the mouse, additional information about the error will appear (fig. 29, item 4).
– The **Save** button is deactivated (fig. 29, item 5), so that the current values cannot be saved.

Proceed as follows to rectify the error:

- Using the information provided, identify the precise nature of the incorrect entry.
  In this particular example, the value entered does not comply with the format of an IP address.
- Correct the defective value, e.g. by entering the value "255.255.255.0".
  The "prohibited symbol" is masked out and the **Save** button is activated.
- Save the settings by pressing the **Save** button.

8.2.6 Changing parameter values

Different parameters for the currently selected component are displayed in the list view of the **Observation** index tab. Some of these parameters can be adjusted by the operator, while others have fixed values assigned to them.

For all parameters that can be changed, an "Edit" symbol in the form of a stylised notepad and pen will appear after the respective parameter if the mouse pointer is placed in the relevant line (fig. 30, item 1).

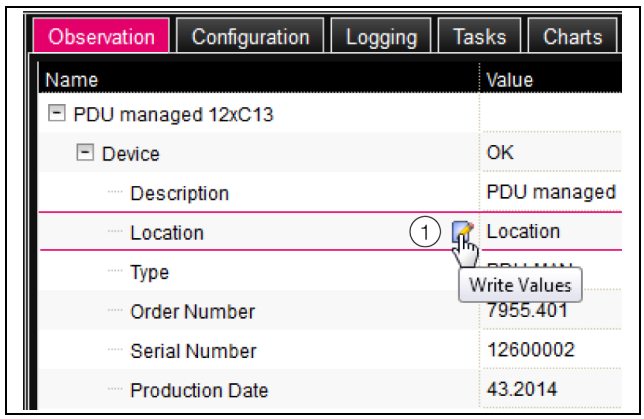

Fig. 30: Editable parameter with "Edit" symbol

Key

1 "Edit" symbol

If this symbol does not appear, the corresponding value cannot be altered.

Example:

- Select the "Master PDU" entry in the navigation area.
- In the right-hand part of the screen, select the **Observation** index tab.
- One after the other, open the "Master PDU" and "Device" entries by clicking on the "plus" symbol in front of the entry (fig. 31, item 1).

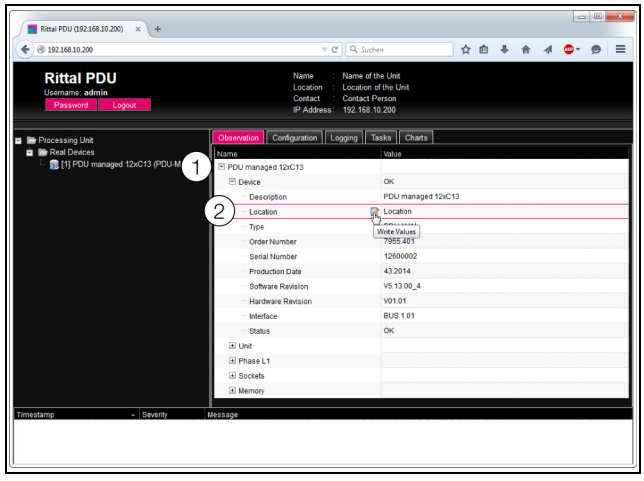

Fig. 31: Select an individual parameter

Key

1 Master PDU and Device entries
2 "Location" parameter

- Position the mouse pointer at the end of the first column in the "Location" line (fig. 31, item 2).
  An "Edit" symbol will appear, and the mouse pointer will change to a "Hand" symbol.
- Click on the "Edit" symbol.

EN

A "Write Values" dialog will appear with the parameter "Device.Location".

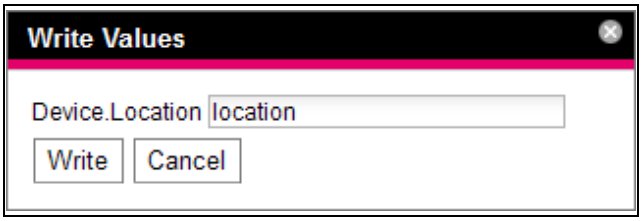

Fig. 32: "Write Values" dialog

- Enter the location of the PDU here, e.g. "PDU server enclosure 1".
- Confirm your entry by clicking the **Write** button.
  The dialog box will close and the new value will appear in the "Location" line.
- Next, position the mouse pointer at the end of the first column in the "Type" line.
  Because **no** "Edit" symbol appears, the value associated with "PDU-MET" cannot be changed.

You may wish to amend several values simultaneously, or may not know the exact entry under which the required parameter is stored. In such cases, you can also display all parameter values of the editable lower-level entries in a shared window.

- Simply open the "Master PDU" entry by clicking on the "plus" symbol in front of that entry (fig. 33, item 1).
- Position the mouse pointer at the end of the first column in the "Device" line (fig. 33, item 2).
  An "Edit" symbol will appear, and the mouse pointer will change to a "Hand" symbol.

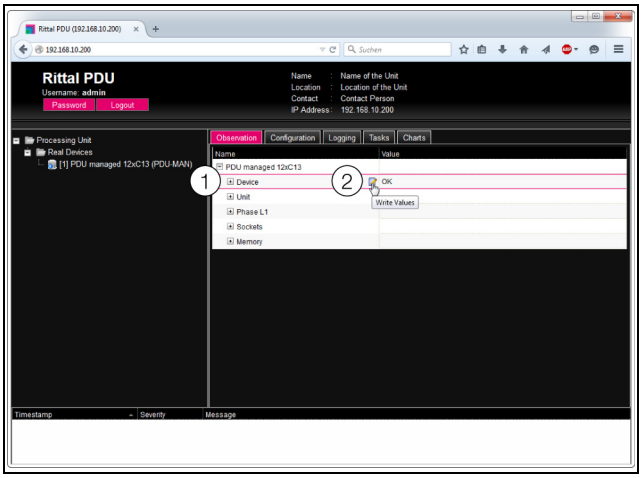

Fig. 33: Select multiple parameters

Key

1 Device entry
2 "Edit" symbol

- Click on the "Edit" symbol.
  The "Write Values" dialog will appear with the two parameters "Device.Description" and "Device.Location".

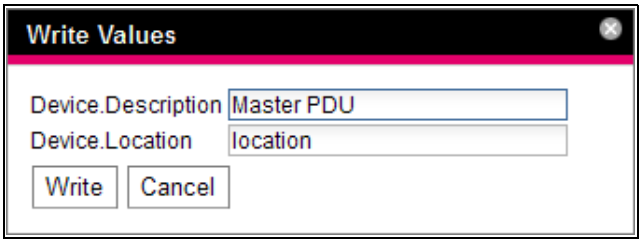

Fig. 34: "Write Values" dialog with multiple parameters

- Save the amended values for all required parameters.
- Confirm your entries by clicking the **Write** button.
  The dialog is closed.
- Extend the "Device" entry by clicking on the "plus" symbol in front of it.
  You can now view all changed values.

The "Write Values" dialog shows all editable parameters below the previously selected level. For example, by clicking on the "Edit" symbol in the top level "Master PDU", **all** parameters that can be changed for the entire component will be displayed.

Note:
If you attempt to amend too many variables, an error message will appear. In such cases, you will need to move down a level.

8.2.7 Logging off and changing the password

For each user group (and thus also for every user), it is possible to specify a time can be specified after which the user will be logged out automatically in case of inactivity (see section 8.7 "Security"). A user can, however, also log out from the web user interface.

- Click the **Logout** button on the top right of the screen page.
  The logout occurs immediately, and the Logon window opens.

Users can also change their own password in the Web user interface.

- Click the **Password** button on the top right of the screen page.
  The dialog "Set new Password for User 'XXX'" will appear.

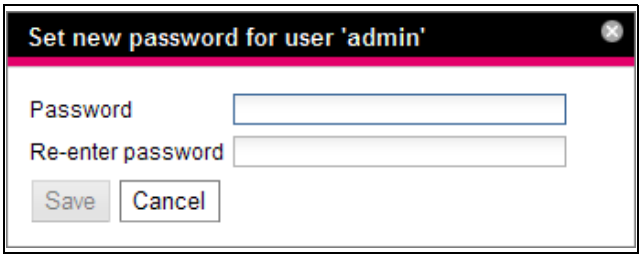

Fig. 35: Change the password

- Enter the new password in the "Password" line (at least 3 characters) and repeat it in the "Re-enter Password" line.
- Confirm your entries by clicking on **Save**.
  The dialog is closed.

Provided both entries match, you will need to use the new password the next time you log into the system.

Note:
Independent of this change, a user with the appropriate rights can change the passwords of **all** users via the user administration (see section 8.7.2 "Users").

8.2.8 Reorganising the connected components

When new components are installed on the PDU, they are inserted into the next free space in the navigation area and allocated a corresponding ID number. Particularly following multiple upgrades or changes to the order of the connected components, this can mean there is no longer any relationship between the position of the components in the CAN bus and the corresponding ID number.

The "Reorganize" function allows you to renumber all connected components,

- In the navigation area, right-click on the "Processing Unit" entry or any other connected component.
- Next, left-click on the "Reorganize" entry in the context menu.

A message appears stating that reorganisation has led to a re-indexing of components. This could cause problems when accessing these components, e.g. via SNMP, and access will need to be reconfigured. However, the "Alarm Configuration" of the individual sensors is retained.

The sensors are then registered automatically again on the PDU.

Note:
When reorganising the components, all components with the status "Lost" are removed from the navigation area.

8.3 Observation index tab

All settings for the individual system components are made in the **Observation** index tab, such as limits for warning and alarm messages. The display in the right-hand area of the screen page depends on which component was selected in the navigation area.

- If you select the "Processing Unit" entry (top node) in the navigation area, all "Real Devices" will be available for selection in the **Observation** index tab.
- If you select the "Real Devices" entry in the navigation area, only components belonging to that group are available for selection on the **Observation** tab.
- If you select a special component in the navigation area, such as the "Master PDU" entry, only this component is available for selection on the **Observation** tab.

Note:
It is not possible to change the parameters of different components at the same time.

The following sections 8.3.1 "Device" to 8.3.6 "Memory" only provide detailed descriptions of editable parameters. There are also display values which are provided for information purposes only.

8.3.1 Device

The general settings for the PDU or for the associated selected component are performed at the "Device" level.

Parameter	Explanation
Description	Individual description of PDU.
Location	Installation location of PDU.

Tab. 10: Settings at "Device" level

Parameters that provide detailed information about the currently selected component, such as the software and hardware versions used, are also displayed. It is advisable to have such information to hand, particularly in order to ensure fast troubleshooting of queries with Rittal.

8.3.2 Unit

More advanced settings for the PDU and individual phases are performed at the individual sub-levels of the "Unit" level.

"Frequency" level

Only the following parameter is displayed at this level:

Parameter	Explanation
Value	Frequency of power supply.

Tab. 11: Display at "Frequency" level

"Active Power" level

Power limits for entire PDU are indicated at this level.

Parameter	Explanation
DescName	Individual description of power value.
SetPtHigh-Alarm	Upper power limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper power limit; a warning is emitted if this is exceeded.
SetPtLow-Warning	Lower power limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower power limit; an alarm is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 12: Settings at "Power Active" level

Note:
If the value "0" is entered for all limit values at the "Power Active" level, the status of the electrical power is always "OK".

The following parameters are also displayed for power:

Parameter	Explanation
Value	Current power value.
Status	Current status of PDU with respect to power.

Tab. 13: Displays at "Power Active" level

"Energy" level
Below this level, energy settings for the entire PDU are made at subsequent sub-levels.
"Active" sub-level
The following energy parameters are displayed at this level:

Parameter	Explanation
Value	Total energy value of PDU
Runtime	Total runtime of PDU to determine the energy value.

Tab. 14: Displays at "Energy" level

"Active Custom" sub-level
The energy value for the user-defined energy meter can be reset at this sub-level (parameter "ActiveCustom.Value").

Parameter	Explanation
Value	User-defined energy meter. This meter can be reset to the value "0".

Tab. 15: Settings at "Active Custom" level

"Runtime" sub-level
The runtime for the user-defined energy meter can be reset at this sub-level (parameter "ActiveCustom.Runtime.Value").

Parameter	Explanation
Value	Runtime of user-defined energy meter. This time period can be reset to the value "0".

Tab. 16: Settings at "Runtime" level

"Mounting Position" level
Only the following parameter is displayed at this level:

Parameter	Explanation
Mounting Position	Installation position of PDU ("Vertical up" or "Vertical down").

Tab. 17: Displays at "Mounting Position" level

8.3.3 Phase L1

Settings for phase L1 of the infeed are made at sub-levels below "Phase L1" level.

"L1 Voltage" level
Voltage limits for phase 1 are indicated at this level.

Parameter	Explanation
DescName	Individual description of the phase L1 voltage value.
SetPtHigh-Alarm	Upper voltage limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper voltage limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower voltage limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower voltage limit; an alarm message is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 18: Settings at "L1 Voltage" level

Note:
If the value "0" is entered for all limit values at the "L1 Voltage" level, the status of the voltage is always "OK".

The following parameters are also displayed for voltage:

Parameter	Explanation
Value	Current voltage value.
Status	Current status of PDU with respect to voltage.

Tab. 19: Displays at "L1 Voltage" level

"L1 Current" level
Current limits for phase 1 are indicated at this level.

Parameter	Explanation
DescName	Individual description of the phase L1 current value.

Tab. 20: Settings at "L1 Current" level

Parameter	Explanation
SetPtHigh-Alarm	Upper current limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper current limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower current limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower current limit; an alarm message is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 20: Settings at "L1 Current" level

Note:
If "0" is entered for all limit values at the "L1 Current" level, the status of the current is always "OK".

The following parameters are also displayed for the current:

Parameter	Explanation
Value	Current value of current.
Status	Current status of PDU with respect to current.

Tab. 21: Displays at "L1 Current" level

"Power" level
Settings for the output of phase L1 are made at sub-levels below the "Power" level.

"Factor" sub-level
The power factor is displayed at this level

Parameter	Explanation
Value	Power factor depending on the current or most recently connected load. This value may be between "-1" and "1" and cannot be altered.

Tab. 22: Displays at "Factor" level

"L1 Power" sub-level
Limits for the power of phase 1 are indicated at this level.

Parameter	Explanation
DescName	Individual description of the phase L1 power value.

Tab. 23: Settings at "L1 Power" level

Parameter	Explanation
SetPtHigh-Alarm	Upper power limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper power limit; a warning is emitted if this is exceeded.
SetPtLow-Warning	Lower power limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower power limit; an alarm is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 23: Settings at "L1 Power" level

Note:
If "0" is entered for all limit values at the "L1 Power" level, the status of the voltage is always "OK".

The following parameters are also displayed for power:

Parameter	Explanation
Value	Current power value.
Status	Current PDU status with respect to power.

Tab. 24: Displays at "L1 Power" level

"Reactive" sub-level
The reactive power is displayed at this level.

Parameter	Explanation
Value	Current reactive power value.

Tab. 25: Displays at "Reactive" level

"Apparent" sub-level
The apparent power is displayed at this level.

Parameter	Explanation
Value	Current apparent power value.

Tab. 26: Displays at "Apparent" level

"Energy" level
Energy settings for phase L1 are made at sub-levels below the "Energy" level.
"Active" sub-level
The energy is displayed at this level.

Parameter	Explanation
Value	Total energy.

Tab. 27: Displays at "Active" level

"Active Custom" sub-level
The current energy since the last meter reset is displayed at this level.

Parameter	Explanation
Value	Energy since the last meter reset.

Tab. 28: Settings at "Active Custom" level

"Apparent" sub-level
The apparent energy is displayed at this level.

Parameter	Explanation
Value	Apparent energy.

Tab. 29: Displays at "Apparent" level

8.3.4 Phase L2 and phase L3

For PDU variants with 3-phase infeed, the same settings as for phase L1 can be implemented here for phases L2 and L3 (see section 8.3.3 "Phase L1").

8.3.5 Sockets for the variants PDU switched/ managed

Settings for the individual sockets are made at sub-levels below the "Sockets" level.

"Socket01" level
Settings for the first socket are made at sub-levels below the "Socket01" level.

"General" sub-level
General settings for the socket are made at this level.

Parameter	Explanation
DescName	Individual description of the socket.
Relay	Select a switching command for the socket. Off On Off 10 s Off 30 s Off 60 s
Grouping	Group number to which the socket is assigned.

Tab. 30: Settings at "General" level

If individual sockets are assigned to a joint group, all sockets in that group are switched together. This can be triggered via the website or via a task. It is irrelevant which socket in the group is switched.
Consequently, it is neither necessary to switch each of these outputs individually, nor must a separate task be created for every single one of these outputs.
The following parameters are also displayed for the socket at the "General" level:

Parameter	Explanation
Circuit	String or phase to which the socket is assigned.
Socket type	Type of connection socket.
Status	Current socket status.

Tab. 31: Displays at "General" level

"Current" sub-level for the PDU managed variant
Limits for the socket current are indicated at this level.

Parameter	Explanation
DescName	Individual description of the socket's current value.
SetPtHigh-Alarm	Upper current limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper current limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower current limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower current limit; an alarm message is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 32: Settings at "Current" level

Note:
If "0" is entered for all limit values at the "Current" level, the status of the current is always "OK".

The following parameters are also displayed for the current:

Parameter	Explanation
Value	Current value of current.
Status	Current socket status with respect to current.

Tab. 33: Displays at "Current" level

"Power" sub-level for the PDU managed variant
Settings for the socket power are made at sub-levels below the "Power" level.
"Factor" sub-level for the PDU managed variant
The power factor is displayed at this level

Parameter	Explanation
Value	Power factor depending on the current or most recently connected load. This value may be between "-1" and "1" and cannot be altered.

Tab. 34: Displays at "Factor" level

"Power" sub-level for the PDU managed variant
Limits for the socket power are indicated at this level.

Parameter	Explanation
DescName	Individual description of the socket's power value.
SetPtHigh-Alarm	Upper power limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper power limit; a warning is emitted if this is exceeded.
SetPtLow-Warning	Lower power limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower power limit; an alarm is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 35: Settings at "Power" level

Note:
If "0" is entered for all limit values at the "Power" level, the status of the power is always "OK".

The following parameters are also displayed for power:

Parameter	Explanation
Value	Current power value.
Status	Current PDU status with respect to power.

Tab. 36: Displays at "Power" level

"Reactive" sub-level for the PDU managed variant
The reactive power is displayed at this level.

Parameter	Explanation
Value	Current reactive power value.

Tab. 37: Displays at "Reactive" level

"Apparent" sub-level for the PDU managed variant
The apparent power is displayed at this level.

Parameter	Explanation
Value	Current apparent power value.

Tab. 38: Displays at "Apparent" level

"Energy" sub-level for the PDU managed variant
Settings for the socket power are made at sub-levels below the "Energy" level.
"Active" sub-level for the PDU managed variant
The energy is displayed at this level.

Parameter	Explanation
Value	Total energy.

Tab. 39: Displays at "Active" level

"Active Custom" sub-level for the PDU managed variant
The current energy since the last meter reset is displayed at this level.

Parameter	Explanation
Value	Energy since the last meter reset.

Tab. 40: Displays at "Active Custom" level

"Apparent" sub-level for the PDU managed variant
The apparent energy is displayed at this level.

Parameter	Explanation
Value	Apparent energy

Tab. 41: Displays at "Apparent" level

"Socket 02" etc. levels for the variants PDU switched/managed
The same settings as for socket 1 may be implemented at these levels for the other sockets, depending on the PDU variant (see section 8.3.5 "Sockets for the variants PDU switched/managed").

8.3.6 Memory

The "Memory" level enables you to view information about a USB stick installed on the PDU. This storage medium must have a maximum total storage space of 32 GB, must be formatted with the FAT32 file system, and is used for recording charts (see section 8.12 "Charts").

"USB stick" level
Information about an installed USB stick is displayed here.

EN

Parameter	Explanation
DescName	Name of USB stick. This name is also displayed directly on the "USB stick" sub-level.
Size	Total storage space on USB stick.
Usage	Used storage space on the USB stick as a percentage of the total storage space.
Command	By selecting the "Eject" command, the USB stick is logged off from the system. It can then be removed without potential loss of data.
Status	Current status of USB stick. "OK": USB stick installed and operational. "Inactive": USB stick installed but logged off. "n.a.": No USB stick installed. "High Warn": Warning message if more than 80% of the storage space has been used. "Too High": Alarm message if more than 90 % of the storage space has been used.

Tab. 42: Displays in the "USB stick" sub-level

Before removing an external storage medium used to store chart data, the storage medium must first be logged off on the PDU. Alternatively, the corresponding charts may be manually deactivated beforehand (see section 8.12.1 "Configuring a chart").

Note:
If an external storage medium is removed directly while charts are activated, this may lead to a loss of chart data.

8.4 Configuration index tab

The content of the **Configuration** tab depends on which component was selected in the navigation area.
If the complete "Processing Unit" system (top node) has been selected, the following configuration options are available:

- **Network** group box
  - TCP/IP
  - SNMP
  - HTTP
  - File transfer
  - Console
  - SMTP
  - Server shutdown
  - OPC-UA
- **System** group box
  - Syslog
  - Units and Languages
  - Details
  - Date/Time
  - Display
  - Firmware Update
- **Security** group box
  - Groups
  - Users
  - LDAP

These configuration options are described in detail in sections 8.5 "Network" to 8.7 "Security".
When a lower-level Real Device is selected, such as the "Master PDU" device, the following configuration options are available:
– Configure All Alarms
– Configure Device Rights

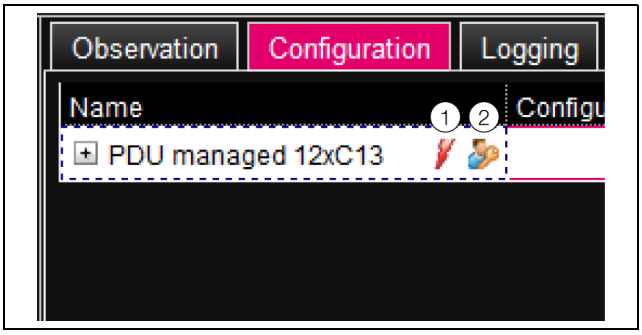

Fig. 36: Editable parameter with "Edit" symbol

Key
1 "Configure All Alarms" symbol
2 "Configure Device Rights" symbol

These configuration options are described in detail in sections 8.9 "Alarm configuration" and 8.8 "Device Rights".

If the complete system "Processing Unit“ has been selected, the operator may display (left button fig. 37, item 1) or print (right button fig. 37, item 2) a summary of the current settings using the two buttons in the top section of the **Configuration** index tab.

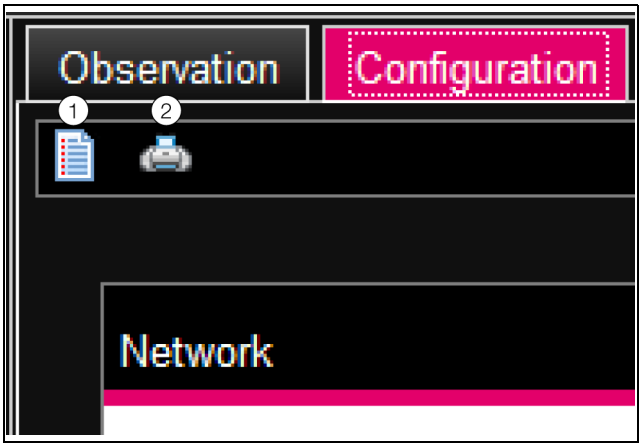

Fig. 37: Summary of current settings

Key
1 Display
2 Print

8.5 Network

8.5.1 TCP/IP configuration

Basic network settings for the TCP/IP protocol are made in the "TCP/IP configuration" dialog; settings are made separately for IPv4 and IPv6.

Parameter	Explanation
IP address	IP address of PDU
Netmask	IP subnet mask.
Gateway	IP address of router.
DHCP	Activate ("DHCPv4" entry) or deactivate ("Manual" entry) DHCP for the automatic assignment of an IP address for a server. If the DHCP is activated, no further inputs can be performed in this group box.

Tab. 43: IPv4 Configuration group box

Parameter	Explanation
IP address 1	First IPv6 address of PDU
IP address 2	Second IPv6 address of PDU
Auto	Displays an IPv6 address obtained automatically from the network.
Link Local	Displays the permanently assigned Link Local address of the PDU.
DHCP	Basic settings for IPv6. "Disable": Deactivate IPv6. "Manual": Manual specification of the IPv6 addresses. "Stateless Auto Configuration": Activate the Autoconfiguration (in Linux networks). "DHCPv6": The address is assigned via DHCPv6 (in Windows networks).

Tab. 44: IPv6 Configuration group box

In addition to the PDU's basic network settings, the address or the server name of up two DNS servers can be entered in the **DNS Configuration** group box for name resolution.

Parameter	Explanation
Name Server	IP address or name of a server for name resolution.
DHCP	Activate ("Automatic by DHCP" entry) or deactivate ("Manual" entry) DHCP for the automatic assignment of an IP address by the DHCP server. If DHCP is activated, no further inputs can be made in this group frame. It must, however, be activated for at least one of the IPv4 or IPv6 DHCP protocols.

Tab. 45: DNS Configuration group box

Parameter	Explanation
PU host-name	DNS name of PDU. If a DNS server is used for name resolution, the PDU can also be accessed using its name rather than the IP address.

Tab. 45: DNS Configuration group box

8.5.2 SNMP Configuration

The "SNMP Configuration" dialog is used to make basic settings for the SNMP protocol.

When making settings for the SNMP protocol, please observe the following:

– The MIB for the PDU is a dynamically generated MIB, which may also change if changes are made to the sensor configuration.
– If the PDU is incorporated into an infrastructure management system via the MIB, only the variable name may be used to identify the variables. Identification via the ObjectID is not recommended.

Note:
The current status of the "OID_List.cmc3" MIB file can be saved from the PDU onto a local PC via FTP access from the "download" folder (see section 11.4 "Saving additional information locally").

All trap receivers are entered in the **Traps** group box and are generally enabled for sending.

Note:
– All trap receivers that are not enabled in this group box ("Use" column) will not receive any traps, even if enabled in the Alarm Configuration.
– All trap receivers that are activated in this group box must additionally be activated in the Alarm Configuration (see section 8.9.3 "Trap Receivers").

Parameter	Explanation
Enable Authentication Trap	Enable or disable the trap messages for queries with an invalid community (so-called "Authentication Trap").
Trap Receivers	Up to 16 IP addresses as possible receivers of trap messages.
Use	Enable or disable individual receivers.

Tab. 46: Traps group box

The **Allowed Hosts** group box can be used to define special host addresses that are able to make contact with the PDU via SNMP.

EN

Parameter	Explanation
Host	Up to 12 IP addresses as possible hosts that can make contact with the PDU. If **no** IP address is entered here, **all** hosts in the network can make contact.
Use	Enable or disable individual hosts.

Tab. 47: Allowed Hosts group box

Note:
Once a host has been entered in the **Allowed Hosts** group box, any other host that is not entered there will no longer be able to query values via the SNMP protocol.

In the **SNMPv1/v2c** group box, you can define special requirements for the SNMP protocol in versions1 and 2c.

Parameter	Explanation
Enable	Enable or disable SNMPv1 and SNMPv2c.
Read Community	Name of the community that has read access to the PDU.
Write Community	Name of the community that has write access to the PDU.
Trap Community	Name of the community with the trap receivers. Trap messages can be sent only to members of this community.

Tab. 48: SNMPv1/v2c group box

In the **SNMPv3** group box, you can define special requirements for the SNMP protocol in version 3.

Parameter	Explanation
Enable	Enable or disable SNMPv3.
SNMPv3 Username	User name for access via SNMP.
SNMPv3 Password	Associated password for access via SNMP. The password must contain at least eight characters.

Tab. 49: SNMPv3 group box

8.5.3 HTTP Configuration

All settings for HTTP access to the PDU are made in the "HTTP Configuration" dialog, subdivided into standard access **without** SSL and secure access **with** SSL.
It is also possible to specify separately for each user whether or not that user has HTTP access to the PDU (see section 8.7.2 "Users").

Parameter	Explanation
Port	Web server port in the PDU.
Enable	Enable or disable access via the HTTP protocol.

Tab. 50: Standard Access (without SSL) group box

Parameter	Explanation
SSL Port	Secure Web server port in the PDU.
Enable	Enable or disable access via the HTTP protocol.

Tab. 51: Secure Access (with SSL) group frame

Note:
It is not possible to disable both forms of access, i.e. with and without SSL, from the Web user interface. This is only possible via a Telnet connection.

8.5.4 File transfer configuration

All settings for access to the PDU via FTP are made in the "File Transfer Configuration" dialog (see section 11 "Updates and data backup").
It is also possible to specify separately for each user whether or not that user has FTP access to the PDU (see section 8.7.2 "Users").

Parameter	Explanation
Port	FTP server port in the PDU.
Enable FTP Server	Enable or disable access via the FTP protocol.
Enable FTP Server	Display access via the SFTP protocol. To ensure access to the PDU at all times, this access cannot be deactivated.

Tab. 52: "File Transfer Configuration" dialog

8.5.5 Console

All settings for access via Telnet and SSH (Secure Shell) are made via the "Console Configuration" dialog (see section 7.3 "Telnet/SSH connection").
It is also possible to specify separately for each user whether or not that user has access to the PDU via Telnet or SSH (see section 8.7.2 "Users").

Parameter	Explanation
Port	Port for access to the PDU via Secure Shell (SSH).
Enable	Enable or disable access via Secure Shell.

Tab. 53: SSH group box

Parameter	Explanation
Port	Port for access to the PDU via Telnet.
Enable	Enable or disable access via Telnet.

Tab. 54: Telnet group frame

8.5.6 SMTP Configuration

The "SMTP Configuration" dialog is used to make the basic settings for sending e-mails.

All settings for the mail server are specified in the **Server Parameters** group box so that the PDU can send an appropriate e-mail when alarms are pending.

Parameter	Explanation
Server	IP address or name of mail server used to send e-mails.
Port	Port of the mail server.
Authentication	Enable or disable authentication on the mail server.
Username	User name for login to the mail server.
Password	Associated password for login to the mail server.
Sender Address	E-mail address of the PDU (sender address).
Reply to Address	Reply address when a receiver answers an e-mail from the PDU.

Tab. 55: Server Parameters group box

All receivers of e-mail messages are entered and generally enabled for sending in the **Known Receivers** group box.

Note:
- All e-mail receivers that are not enabled in this group box ("Use" column) do not receive any e-mails, even if enabled in the Alarm Configuration.
- All e-mail receivers that are activated in this group box must additionally be activated in the Alarm Configuration (see section 8.9.2 "E-mail receivers").

Parameter	Explanation
Email Address	A maximum of 16 e-mail addresses as possible receivers of e-mails from the PDU.
Use	Enable or disable individual receivers.

Tab. 56: Known Receivers group box

8.5.7 Server Shutdown Configuration

Basic settings for the regulated shutdown of servers via a task are made in the "Server Shutdown Configuration" dialog (see section 8.11.3 "Selecting an action"). For this purpose, an RCCMD software licence (7857.421) must be installed on each of these servers.

Parameter	Explanation
Name	Name of server.
Host name	IP address or name of server to be shut down.
Port	Port on which the server receives the RCCMD signal. Port 6003 is set as default.
Delay	Amount of time for which the alarm must be active in order to launch the shutdown of the respective server.
Use	Enable or disable individual servers.

Tab. 57: Servers group box

Note:
- All servers that are not enabled in this group box ("Use" column) will not be shut down even if enabled in a task.
- All servers that are enabled in this dialog must additionally be enabled in the respective task (see section 8.11.3 "Selecting an action").

8.5.8 OPC-UA Configuration

The OPC-UA protocol is a network management protocol that can be used in control room technology. This protocol allows data from the PDU and from the connected sensors to be requested from the **Observation** tab. It does not, however, provide any access to the **Configuration**, **Logging** and **Tasks** tabs.

The "OPC-UA Configuration" dialog is used to make the basic settings for this communications protocol.

Parameter	Explanation
Enable	Enable or disable access via the OPC-UA protocol.
Port	Port of the OPC-UA server in the PDU. Port 4840 is set as the default.

Tab. 58: "OPC-UA Configuration" dialog

8.6 System

8.6.1 Syslog

The "Syslog Configuration" dialog is used to make the basic settings for sending log messages to the Syslog server.

Parameter	Explanation
Server 1	The IP address of a server to which the alarm and event logs are sent.

Tab. 59: "Syslog Configuration" dialog

EN

Parameter	Explanation
Server 2	The IP address of a second server to which the alarm and event logs are sent.
Facility	A digit between 0 and 7 (inclusive) used to specify the priority of the sent log.
Enable Syslog	Enable or disable the sending of log messages.

Tab. 59: "Syslog Configuration" dialog

8.6.2 Units and Languages

In the "Units and Language Configuration" dialog, the **Units** group box can be used to toggle between the units "Celsius" and "Fahrenheit" for all temperature values.

Parameter	Explanation
Temperature format	Select the desired temperature unit ("Celsius" or "Fahrenheit").

Tab. 60: Units group box

- After changing the unit, check all temperature setting values (e.g. from a connected temperature sensor).

The language for the PDU website can be selected in the **Language** group box.

- Select the required language, e.g. German, from the dropdown list.
- Next, log off from the PDU website (see section 8.2.7 "Logging off and changing the password") then log on again.

The names of the levels and parameters will continue to be displayed in English after changing the language. However, tool tips can be displayed in your chosen language.

- Hover the mouse over the **Observation** tab e.g. on the entry for the "Device" level underneath the main "Master PDU" level.

  A tool tip with the German translation of "Device" ("Gerät") will appear.

8.6.3 Details

The "Details Configuration" dialog displays detailed information about the PDU. Specific parameters can be customised to differentiate between multiple installations.

Parameter	Explanation
Name	Name of PDU (for more precise identification).
Location	Installation location of PDU (for more precise identification).
Contact	Contact address, typically an e-mail address.

Tab. 61: "Details Configuration" dialog

Parameter	Explanation
Hardware Revision	Display of the PDU hardware version.
Software Revision	Display of the PDU software version.
Serial Number	Display of PDU serial number.

Tab. 61: "Details Configuration" dialog

8.6.4 Date/Time

The "Date and Time Configuration" dialog is used to change the system date and time of the PDU.

Parameter	Explanation
Time Zone	Selection of the time zone. The time zone is required when an NTP server is used.

Tab. 62: Time Zone group box

Parameter	Explanation
Time	Current time.
Date	Current date.

Tab. 63: Date/Time group box

Note:
Changing the system date or system time can lead to the loss of chart data (see section 8.12 "Charts").

The Network Time Protocol can be enabled in the **NTP** group box. The associated NTP server can also be defined here. These settings can be used to synchronise the local date and time setting of the PDU with a server.

Parameter	Explanation
Use NTP	Enable or disable the NTP function for the time and date synchronisation with an NTP server.
NTP Server 1	IP address or name of the primary NTP server.
NTP Server 2	IP address or name of the secondary NTP server.

Tab. 64: NTP group box

8.6.5 Display

The PIN for access to the **Setup** configuration menu may be set in the "Display Configuration" dialog on the PDU display.

Parameter	Explanation
Set new display PIN	Enter the new PIN. This must contain exactly four digits.

Tab. 65: "Display Configuration" dialog

8.6.6 Firmware Update

Note:
Observe the instructions for performing an update in section 11.2 "Performing an update".

The PDU can be updated directly via the website in the "Firmware Update" dialog. Alternatively, this can also be achieved with a USB storage medium (see section 11.2.3 "Update via USB") or via an (S)FTP connection (see section 11.2.4 "Update via FTP or SFTP").

- Click the "Disk" symbol in the "Firmware Update" dialog.
- Navigate through the file selection dialog to the new firmware file ending in "tar" which you need to install, and select it.
  The file name displayed in the dialog.
- Click the **Start Update** button.

The update process starts automatically after a few seconds. This is indicated by red flashing of the multi-LED on the PDU (so-called heartbeat, alternately long and short).

8.7 Security

All basic settings for user groups and individual users are specified in the **Security** box frame. These settings can be changed for individual components. If the "default" standard setting is used for the individual components, the values specified here are used.

8.7.1 Groups

Up to 32 different user groups can be defined in the "Groups Configuration" dialog. 33 users may be created and assigned to these groups in the "Users" dialog (see section 8.7.2 "Users").

Parameter	Explanation
Name	Name of user group.
Description	(Detailed) description of user group.
Initial Data Rights	User group authorisation regarding the device's parameters of the type "Data" (see section 8.8.2 "Data types"). Possible settings are no rights ("no" setting), read rights only ("read" setting) and change the limit values ("read/write" setting).

Tab. 66: "Groups Configuration" dialog

Parameter	Explanation
Initial Config Rights	User group authorisation regarding the device's parameters of the type "Config" (see section 8.8.2 "Data types"). Possible settings are no configuration rights ("no" setting), configuration parameters can only be read ("read" setting) and parameters can be changed ("read/write" setting). The authorisations set here are automatically transferred to newly registered devices.
Admin	Show or hide the **Configuration** and **Tasks** tabs. Here too, the general information about the sensors under the "Device" point may only be edited as an administrator.
Auto Logout [sec]	The time after which a user from this group is automatically logged out from the PDU in case of inactivity. Where the set value is "0", there is no automatic logoff for that user.

Tab. 66: "Groups Configuration" dialog

We recommend using the setting in the "admin" column for restricted user groups to prevent access to the **Configuration** tab (box unchecked). If this is not done, there is a possibility that users could reassign their own rights.

Note:
The "admin" group cannot generally be changed.

8.7.2 Users

Up to 33 different users can be defined in the "Users Configuration" dialog.

Parameter	Explanation
Enabled	Enable or disable a user.
User	User name for login to the PDU.
Group	User group to which the user belongs.
File Transfer	User authorisation for access via FTP. Possible settings are no access ("no" setting), read-only access ("read" setting) or read and write access ("read/write" setting). If access via FTP is generally disabled (see section 8.5.4 "File transfer configuration"), this setting has no effect.
HTTP	User authorisation for access via HTTP. If the checkbox is activated, access via HTTP is possible; if the checkbox is deactivated, access via HTTP is not possible. If access via HTTP(S) is generally disabled (see section 8.5.3 "HTTP Configuration"), this setting has no effect.

Tab. 67: "Users Configuration" dialogue

Parameter	Explanation
Console	User authorisation for access via Telnet or SSH. If the checkbox is activated, access via Telnet or SSH is possible; if the checkbox is deactivated, access via Telnet or SSH is not possible. If access via Telnet or SSH is generally disabled (see section 8.5.5 "Console"), this setting has no effect.

Tab. 67: "Users Configuration" dialogue

Note:
If the access type using a specific protocol is generally disabled, such access cannot be enabled for a single user.

Users with the appropriate access rights can use the **Set Password** button to (re)assign a password for another user. This requires preselection of the desired user, otherwise the button is disabled.
In addition, users can change their own password after they have logged in (see section 8.2.7 "Logging off and changing the password").

8.7.3 LDAP configuration

The "LDAP Configuration" dialog can be used to take over user administration from an LDAP server. If access to an LDAP server is configured and enabled, the the user data will always be checked first on the LDAP server during login. If it is not found there, the system will then search the local user administration in the PDU.
The basic settings for the LDAP server are specified in the **Server** group box.

Parameter	Explanation
Enable LDAP	Enable or disable access to the LDAP server.
Host name	The IP address or name of the LDAP server.
Bind DN	Distinguished Name for login on the LDAP server.
Bind PW	Password for authentication on the LDAP server.

Tab. 68: Server group box

The settings for requesting the group names on the LDAP server are specified in the **Group Search** group box.

Parameter	Explanation
Search Filter	Filter for requesting the group names on the LDAP server. The expression "(&(objectClass=group)(member=%U))" is stored as standard.
Base DN	Root directory in which the information for group administration is stored.
Attribute	Attributes returned from the LDAP server for the request.

Tab. 69: Group Search group box

Note:
"%U" can be used as a placeholder for the LDAP user in the aforementioned "Search Filter".

The settings for requesting the user names are specified in the same way in the **User Search** group box.

Parameter	Explanation
Search Filter	Filter for requesting the user names on the LDAP server. The expression "(&(objectClass=user)(sAMAccountName=%L))" is stored as standard.
Base DN	Root directory in which the information for the user administration is stored.
Attribute	Attributes returned from the LDAP server for the request.

Tab. 70: User Search group box

Note:
"%L" can be used as a placeholder for the login name in the aforementioned "Search Filter".

Whereas the users stored in the LDAP server need not necessarily exist in the local user administration of the PDU, the groups must be created locally. To avoid needing to use the same group names in the LDAP server and in the PDU, the associated names on the LDAP server can be assigned to the local group names of the PDU in the **Group Alias Configuration** group box.

Parameter	Explanation
Group Name	Name of the group in the PDU.
LDAP Alias	Corresponding name of the group in the LDAP server.

Tab. 71: Group Alias Configuration group box

8.8 Device Rights

After selecting the "Master PDU" component from the "Real Devices" category in the navigation area, you can specify the access rights to components for individual user groups under the **Configuration** tab.

- Select the "Master PDU" entry in the navigation area.
- Select the **Configuration** tab in the right-hand area of the screen page.

The various parameters for the currently selected component are displayed in the list view of the **Configuration** index tab. Access rights to these parameters can be amended by the operator.

- Click on the Configure Device Rights" symbol.
  The "Device Rights Configuration" dialog will appear.

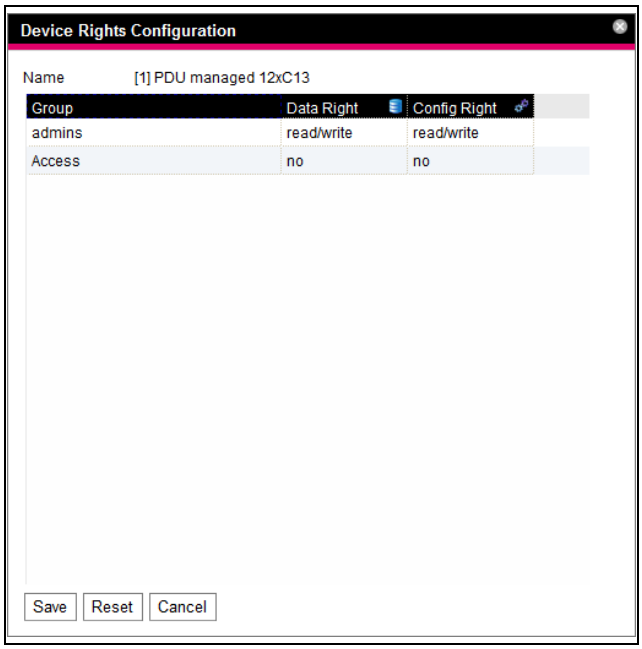

Fig. 38: "Device Rights Configuration" dialog

The name of the device for which "Device Rights Configuration" is currently being implemented is shown above the table. The names of the user groups are shown in the "Group" column.

Parameter	Explanation
Group	Names of all user groups created previously (see section 8.7.1 "Groups").

Tab. 72: "Group" column

Access to the device's parameters of the type "Data" is defined under the **Observation** tab in the "Data Right" column. The assignment of parameters to the type "Data" is indicated by the "database" symbol preceding the respective parameter on the **Configuration** tab (see section 8.8.2 "Data types"). Here you can choose between the following settings:

Parameter	Explanation
no	Members of the group have neither read nor write access to parameters of the type "Data".
read	Members of the group have read access to parameters of the type "Data".
read/write	Members of the group have read and write access to parameters of the type "Data". This setting only takes effect if the software permits changes to parameters of the type "Data".

Tab. 73: "Data Right" column

Access to the device's parameters of the type "Config" is defined under the **Observation** tab in the "Config Right" column. The assignment of parameters to the type "Config" is indicated by the "gear" symbol preceding the respective parameter on the **Configuration** tab (see section 8.8.2 "Data types"). Here you can choose between the following settings:

Parameter	Explanation
no	Members of the group have neither read nor write access to the limit values. If the "no" entry is also selected in the "Data Right" column, only the "Device" level can be viewed. If some other entry is selected in the "Data Right" column, the "Value" and "Status" values can be viewed in the other levels.
read	Members of the group have read access to the limit values. This means they can view the voltage limit values for alarms and warnings, for example.
read/write	Members of the group have read and write access to the limit values. This means they can view and change the voltage limit values for alarms and warnings, for example.

Tab. 74: "Config Right" column

If a field is unlabelled, the "Device Rights" at the level below this will vary (see section 8.8.1 "Inheriting Device Rights").

Note:
Generally speaking, access rights defined in this way only apply to the access to the associated component via the website.

8.8.1 Inheriting Device Rights

The allocation of rights for the individual sensors is structured in a parallel way to that shown on the **Observation** index tab. A change to one node will automatically be transferred to all variables beneath that node.

- Select the "Master PDU" entry in the navigation area.

- Select the **Configuration** tab in the right-hand area of the screen page.
- After the "Master PDU" entry, select the "Device Rights" symbol.
  The "Device Rights Configuration" dialog will appear (fig. 38).

If changes are made in this dialog and a user group is assigned a different access authorisation to the variables, that user group will have the same access rights for all variables beneath the "Master PDU" node.

If there is another node with different lower-level variables, the inheritance of access rights will apply here too. Any configuration changes are automatically transferred to the second node and the variables beneath it. On the other hand, if the second node is amended, the access rights will only change for all variables beneath that node.

If you wish to amend a single lower-level parameter, this can be selected and edited individually.

- Open the entire structure by clicking on the "plus" symbol.
- Select the "Device Rights" symbol immediately after the variable you wish to edit.

If the access rights to the individual parameters in the "Device Rights Configuration" dialog differ for one node, at this point an empty box will be displayed in the "Device Rights Configuration" for the entire sensor. By editing this empty box, the setting made there will, in turn, be adopted for all lower-level parameters.

8.8.2 Data types

The sensor parameters are divided into two types:

– Data
– Config

A variable of the type "Data" supplies status information and can only be amended for those sensors whose software permits it. A variable of the type "Config" contains configuration information and can be amended by users if the software permits it.

The respective type is indicated by a symbol. Parameters of the type "Data" are indicated by a "database" symbol (with stacked blue cylinders). Parameters of the type "Config" are indicated by two diagonally arranged gear wheels.

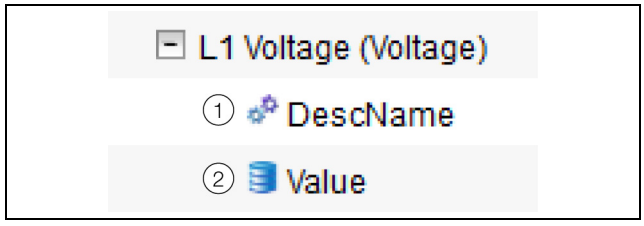

Fig. 39: Symbols for the data types

Key

1 "Gear wheel" symbol (data type "Config")
2 "Database" symbol (data type "Data")

The respective symbols are displayed both when selecting a sensor in the navigation area on the **Configuration** tab and opening it down to the lowest level, as well as in the "Device Rights Configuration" dialog (fig. 38, item 1). The symbols illustrate allocation to the two data types "Data" and "Config".

8.9 Alarm configuration

After selecting the "Master PDU" entry under "Real Device" or some other component under "Real Device", the alarm notification for each measured value may be specified individually on the **Configuration** tab.

- Select the "Master PDU" entry in the navigation area.
- Select the **Configuration** tab in the right-hand area of the screen page.
- Click on the "Configure All Alarms" symbol.
  The "Alarm Configuration" dialog will open.

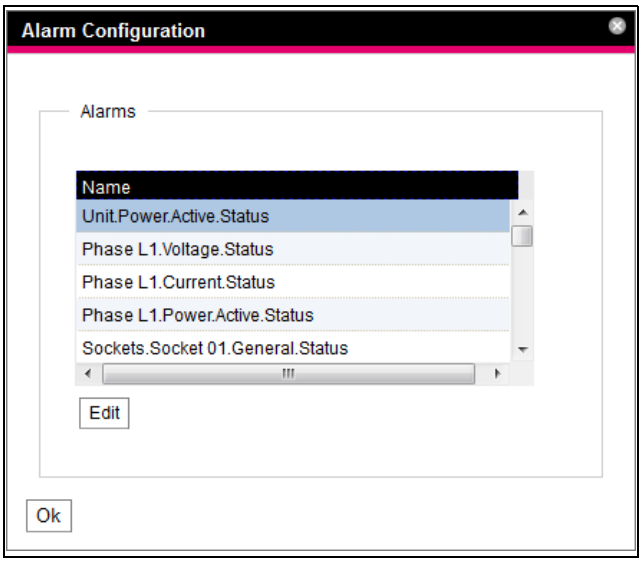

Fig. 40: "Alarm Configuration" dialog

- In the list, click in the line of the PDU or sensor for which you want to specify the PDU's response.
- Click on **Edit**.
  For example, if the sensor for total power is selected, the "Alarm Configuration: Unit.Power.Active.Status" dialog will appear.

8.9.1 Notifications

You can make settings in the **Notifications** group box to specify the handling of active alarms.

Parameter	Explanation
Acknowledge required	If this setting is enabled, the alarm message remains displayed until it has been acknowledged. This means even when the source of the alarm no longer applies, for example, the power has fallen back below the switching point, the "Alarm" status will remain. Only the transition to "OK" status is blocked, i.e. other alarms and the transition to "warning" status are displayed even when this setting has been enabled.
Delay	The delay time between a measured value being exceeded and the transition to alarm or warning status. This delay time does not apply to the transition to "OK" status.

Tab. 75: Notifications group box

8.9.2 E-mail receivers

Settings can be made in the **Email Receivers** group frame to specify which receivers should be sent an e-mail when an alarm occurs.
All receivers that have been created correctly will be displayed here (see section 8.5.6 "SMTP Configuration"). These receivers are **deactivated** by default.

Parameter	Explanation
Email Address	The e-mail addresses that were created in the PDU configuration.
Use	Enable or disable the associated receiver.

Tab. 76: Email Receivers group box

Note:
If an e-mail receiver was generally disabled previously, it may be enabled for individual alarm messages, but e-mail messages will still not be sent to this receiver (see section 8.5.6 "SMTP Configuration").

8.9.3 Trap Receivers

You can make settings in the **Trap Receivers** group box to specify which receivers should be sent a trap message.
All receivers that have been created correctly will be displayed here (see section 8.5.2 "SNMP Configuration"). These receivers are **activated** by default.

Parameter	Explanation
Trap Host	The trap receivers that were created in the PDU configuration.
Use	Enable or disable the associated receiver.

Tab. 77: Trap Receivers group box

Note:
If a trap receiver was generally disabled previously, it may be enabled for individual alarm messages, but trap messages will still not be sent to this receiver (see section 8.5.2 "SNMP Configuration").

8.10 Logging

Log information about the PDU may be viewed on the **Logging** tab. Because this log information has general validity, the information displayed on the **Logging** tab is independent of the component selected in the left-hand area of the screen page.

Note:
The current status of the log file can be saved from the PDU onto a local PC via FTP access (see section 11.4 "Saving additional information locally").

■ Select the **Logging** tab in the right-hand area of the screen page.

Fig. 41: Logging tab

Key
1 Define a filter
2 Reload the information
3 Clear the display
4 Print the display

Initially, a note is displayed stating that you can either
– define a filter to display only selected events
or
– refresh the display to show a complete history of all events
The symbols in the toolbar below the tabs can be used for this purpose.

8.10.1 Defining a filter

You can define a filter to obtain only selected portions of all messages.
■ Click on the first symbol on the left (fig. 41, item 1).
The "Set Logging Filter" dialog opens.
The following parameters are available:

Parameter	Explanation
Date	Messages from a specific date.
Type	Error type. For example, by selecting "Alarm", only alarm messages but no other messages from devices will be displayed.
Device Index	Messages for a specific device. The (internal) number of the device that was specified for the initial connection is selected.
User	Messages triggered by a specific user. For example, messages about when the user logged in or out are displayed.
IP Address	The messages that can be assigned to a specific IP address. All addresses from which the PDU was accessed are listed.

Tab. 78: Settings in the "Set Logging Filter" dialog

"All Items" is the first entry in each column. If you select this entry, the entries of the associated column are **not** filtered.

Example: All information messages issued on 19.01.2012

- Select the above date "19.01.2012" in the "Date" column.
- Select the "Info" entry in the "Type" column.
- Select the "All items" entry in each of the following three columns.
- Click on **OK**.

The filter is applied and only those messages that satisfy the above criteria will appear in the list.

Note:
Multiple entries can be marked in the individual columns by clicking with the "Ctrl" key held down.

8.10.2 Refreshing the view

After defining a filter, all messages stored until this time that satisfy the filter criterion are displayed. There is no automatic refresh of the display when new messages arrive, i.e. the display must be refreshed manually.

- Click on the second symbol from the left (fig. 41, item 2).
  It takes a moment until all events have been reloaded from the PDU. The refreshed list with all events is then displayed.

Note:
After each refresh, only those messages that satisfy the currently specified filter criterion will be displayed.

8.10.3 Printing the display

The entire history, or events selected by a filter, may be printed.

- First define a suitable filter to only display a selected portion of all events (see section 8.10.1 "Defining a filter").
- Click on the fourth symbol from the left (fig. 41, item 4).
  Once again, it will take a moment until all events have been reloaded from the PDU. The refreshed list with all events is then displayed in a separate window, and a "Print" dialog will open.
- Print the display, or if applicable, save it as a PDF file.

8.10.4 Clearing the display

You can clear the current display at any time.

- Click on the third symbol from the left (fig. 41, item 3).
  All entries are cleared from the display and the same note as when selecting the **Logging** tab will appear.

Note:
Only the entries in the display are cleared; the log file remains unchanged.

8.11 Tasks

Tasks can be used to poll and logically link the status of the PDU and all connected components. Additionally, date values may also be incorporated into the links. In the event of a status change to the trigger expression (see section 8.11.2 "Defining the trigger expression"), various actions may then be activated. For example, in the event of an alarm message on a certain day of the week, a corresponding e-mail may be sent. The current status of a task cannot be queried via SNMP.

Tasks have general validity. For this reason, the information displayed on the **Tasks** index tab is independent from the components selected in the left-hand section of the screen.

8.11.1 Tasks tab

The following information for as many as 16 different tasks is displayed on this tab:

Parameter	Explanation
ID	Unique ID of the task. This ID is defined by the system and cannot be changed.
Name	Name of task.
Description	(Detailed) description of the task.
Enabled	"Yes" or "No" display indicating whether the associated task is enabled, i.e. whether or not the assigned action is performed.

Tab. 79: Tasks tab

The settings for the individual tasks can be changed in the "Task Configuration" dialog by clicking on **Edit**.

8.11.2 Defining the trigger expression

- Click on the **Edit** button of the task whose configuration you want to change or create.
  The "Task Configuration" dialog opens.

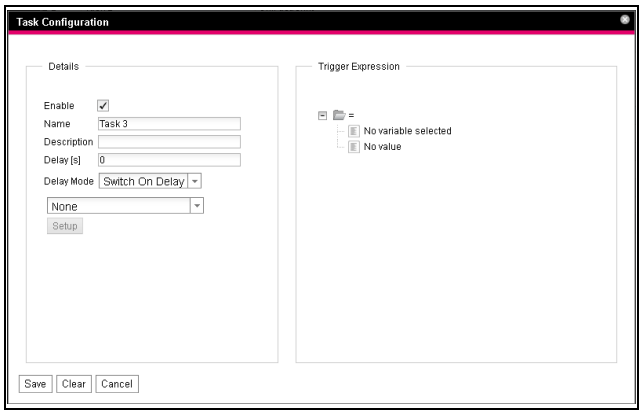

Fig. 42: "Task Configuration" dialog

Details group box

Make the following settings in the left-hand **Details** group box:

Parameter	Explanation
Enable	Enable or disable the task.
Name	Name of task.
Description	(Detailed) description of the task.
Delay	Delay time for a task in seconds. If the value "0" is entered here, no delay will occur, irrespective of the selected "Delay Mode".
Delay Mode	Type of delay
Dropdown list	Select an action to be performed when the associated expression is "true". Alternatively, a parameter value may be set.
Setup	Definition of the action to be performed.

Tab. 80: Details group box

Delaying a task

A task may additionally be controlled with a delay time. This delay time is defined via the parameter "Delay [s]" and may be selected individually between 0 and 9999 seconds.

The type of delay is configured via the dropdown list of the "Delay Mode" parameter.

Parameter	Explanation
Switch On Delay	ON delay. When the corresponding expression is "true", the system will first wait for the defined "Delay" time before executing the set action.
Switch Off Delay	OFF delay If the corresponding expression is "true", the set action is executed immediately. If a status subsequently changes and the expression becomes "false", the system will first wait for the defined "Delay" time before reversing the set action.
Pulse	Pulse. When the corresponding expression is "true", the system will first execute the set action over the duration of the defined "Delay" time. Once this period has expired, the action will be discontinued and reset to the original status.

Tab. 81: Selection list to delay a task

Note:
Generally speaking, the chosen action is only executed if the "Trigger Expression" still applies following expiry of the delay time. On the other hand, if a value has changed during the delay time and the "Trigger Expression" no longer applies, the chosen action will not be executed.

Trigger Expression group box

The expression to be checked is specified in the right-hand **Trigger Expression** group box. Various variables can be linked with each other using the Boolean operators "Or" ("|"), "And" ("&"), "Not-Or" ("~|"), "Not-And" ("~&"), "Equal to" ("=") and "Not equal to" ("<>").

Parameter	Explanation
Operator Type	The Boolean operator used to link subordinate expressions and check the variables.
Nature	Select "Time" for checking a specified time or "Variable" for checking a variable value.
Device	Select the device for which a value should be checked.
Variable	The variable whose value is to be checked. This list shows only those variables available for the previously selected device.
Value	Value against which the variable is to be checked. This list shows only those values available for the previously selected variable.

Tab. 82: Trigger Expression group box

The dropdown lists for selection of the various setting options are displayed after clicking one of the predefined values "=", "No Variable Selected" or "No Value" (see section 8.11.4 "Example of creating a task").

The "=" and "<>" operators can be used to check variables of the PDU itself or its connected devices for a spe-

cific status. As an alternative, date details (day of week) can be checked.
The "|" and "&" operators can be used to link subordinate expressions with each other.
Proceed as follows to define an expression:

- When several expressions are to be checked: First specify whether the two subordinate expressions must both return the "true" value ("&" operator) or whether just one value is sufficient to initiate the action ("|" operator).
- Specify separately for all subordinate expressions whether they return the value "true" when the variable or the date matches the value ("=" operator) or not ("<>" operator).

8.11.3 Selecting an action

Finally, from the dropdown list assign an action to the task which is to be performed when the complete expression returns the value "true".

Note:
The action stored for a task is only ever executed following a status change. If the definition of a task changes, such as the logic of the switch output, the output is not switched directly following acceptance of the change, but only when the status of an input changes.

You can choose between the following settings:

Parameter	Explanation
Send Status Email	Send a status e-mail.
Suppress Alarm Email	Suppress the sending of e-mails to selected receivers.
Suppress Alarm SMS	This setting has no effect.
Suppress Alarm Trap	Suppress the sending of traps to selected receivers.
Suppress Alarm Message	Suppress the alarm message for the selected status variable.
Set Variable Value	Set a variable value.
Shutdown Server	Regulated shutdown of a server.

Tab. 83: Details group box

After selecting your required action, it must be configured appropriately.

- Click on **Setup**.

Depending on the previously selected action, in the appropriate dialog you can specify, for example, who should be sent a status e-mail ("Send Status Email" action), for which status an alarm message should be suppressed ("Suppress Alarm Message" action), etc.

"Set Variable Value" action

If the "Set Variable Value" action is selected, "switchable" variables (such as the individual slots of a PDU switched/managed) can be set.

Note:
A device with a switchable variable must first be selected from the "Device" dropdown list so that the associated selection options are displayed in the fields below.

After clicking on **Setup**, the "Configure Set Variable Value" dialog will appear.

Parameter	Explanation
Device	Device on which the variable is to be set.
Variable	Variable to be set.
Value on True	Value of the variables if the expression previously defined in the **Trigger Expression** group box has the value "true".
Value on False	Value of the variables if the expression previously defined in the **Trigger Expression** group box has the value "false".

Tab. 84: "Configure Set Variable Value" dialog

Note:
In all cases, it is important to ensure that **different** values have been selected in the two dropdown lists "Value on True" and "Value on False". Otherwise, the variable will retain this value even if the value of the expression in the **Trigger Expression** group box changes.

Grouping outputs

The assignment of an output to a group allows a single task or switching command via the website, Telnet or SNMP to switch several outputs (also different components) in the same manner. This means it is not necessary to create a separate task for each of these outputs. Therefore, if you have assigned the same group number to multiple outputs, selecting **one** of these outputs will also switch all the other outputs in this group correspondingly.

"Shutdown Server" action

If the "Shutdown Server" action is selected, servers with a corresponding RCCMD software licence installed will be shut down in a regulated manner (see section 8.5.7 "Server Shutdown Configuration").
After clicking on the **Setup** button, the "Shutdown Server" dialog will appear.

- In the "Use" column, activate the servers you wish to shut down if the expression previously defined in the **Trigger Expression** group box has the value "true".

8.11.4 Example of creating a task

You would like to define a task whereby a status e-mail is sent if if the upper power limit for the entire PDU is exceeded at the weekend.

- Click the "=" operator displayed by default in order to display the "Operator Type" dropdown list.
- Select the "&" operator in this dropdown list in order to link the "weekend" and "power value" events with each other.
- Click the "No Variable Selected" entry below the first "=" operator.
- Select the "Time" entry in the "Nature" dropdown list.
- Click the first entry, "Never".
- Select the "Saturday" entry in the "Day of Week" list box.
- While keeping the "Ctrl" key held down, also select the "Sunday" entry in this list.
- Click the "No Variable Selected" entry below the second "=" operator.
- Select the "Variable" entry (preselected by default) in the "Nature" dropdown list.
- Select the "[1] Master PDU" entry in the "Device" dropdown list.
- Select the "Unit.Power.Active.Status" entry in the "Variable" dropdown list.
- Click the "(zero)" entry below the "[1] Unit.Power.Active.Status" variable.
- Select the "High Warn" entry in the "Value" dropdown list.
- Now select the "Send Status Email" entry as an action in the dropdown list in the **Details** group box.
- Click on **Setup** to specify the desired receivers for the status e-mail via activation in the "Use" column.
- Check that the "Enable" checkbox is activated.

8.11.5 Deactivating or deleting a task

A task that is not required may be deactivated or deleted.

- Open the configuration menu for the respective task.

Deactivating a task

- Deactivate the "Enable" checkbox.
- Save the configuration by clicking on **Save**.

Deleting a task

- Click the **Clear** button.
  This will reset the task's settings to their default values.
- Save the configuration by clicking on **Save**.

8.12 Charts

Up to 16 diagrams may be generated on the **Charts** tab, showing the development over time of up to 6 variable values in each case. The data from these diagrams may be downloaded as CSV files for separate evaluation (e.g. using a spreadsheet program like Excel) (see section 8.12.3 "Evaluating the CSV files").

- Select the **Charts** tab in the right-hand area of the screen page.

Fig. 43: Charts tab

Key

1 Title bars
2 Superimposed diagram

- Click on the title bar of the respective chart to show or hide the corresponding diagram and the configuration buttons.

8.12.1 Configuring a chart

In order to record the variable values, each chart first needs to be configured and activated (once only).

- If the buttons for configuration and navigation of the diagram are not displayed, please click on the title bar. The diagram will then drop down and can be configured (e.g. "Chart 1").
- Click the "Configuration" button.
  The "Chart Configuration" dialog opens.

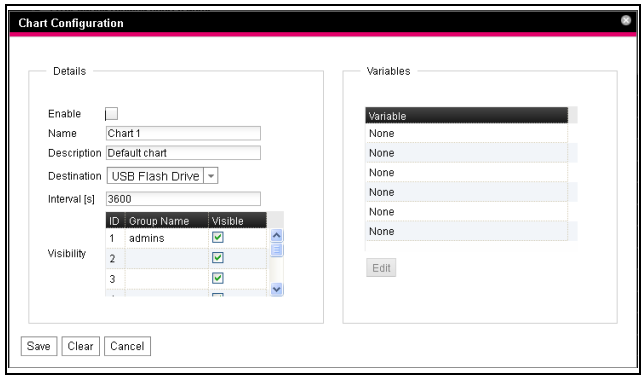

Fig. 44: "Chart Configuration" dialog

Make the following settings in the left-hand **Details** group box:

Parameter	Explanation
Enable	Enable or disable the chart.
Name	Name of chart. This name is displayed in the title bar of the chart.
Description	Description of chart.
Destination	Displays the external storage medium on which the chart data is saved (USB flash drive).
Interval	Time interval in seconds in which the current value is saved.
Visibility	Activation of user groups who may view and configure the respective chart.

Tab. 85: Details group box

Before removing an external storage medium on which chart data is stored, the corresponding charts must first be deactivated. Otherwise, the files containing the chart data could become damaged. Alternatively, the external storage medium may also be logged off from the system prior to removal (see section 8.3.6 "Memory"). This will deactivate the charts automatically.

Note:
If an external storage medium is ejected directly, this may lead to a loss of chart data.

Up to 6 variables per chart are indicated in the right-hand group box **Variables** and their values displayed in graphical form.

Note:
Changing the settings of existing diagrams may lead to a loss of data. If applicable, the corresponding CSV files should be saved beforehand (see section 8.12.3 "Evaluating the CSV files").

- Select one of the 6 lines.
  If the entry "None" appears in one line, this variable is already assigned to the chart
- Click the **Edit** button.
  The "Variable Selection" dialog opens.

The following parameters are available:

Parameter	Explanation
Device	Select the device from which a value is to be recorded.
Variable	The variable whose value is to be recorded. In this list, only the available variables for the previously selected device are displayed.

Tab. 86: Variables group box

- Click on **OK** to accept your chosen settings, or cancel the operation by clicking the **Cancel** button.
  The "Chart Configuration" dialog will open again.
- If necessary, insert other variables into the chart in the same way.
- Click on the **Save** button to save the diagram with your chosen settings.
- Alternatively, click **Clear** to reset all diagram settings to their default values. All previously saved chart values will then be deleted.

If variables with different units are assigned to one diagram (for example, current in A and voltage in V), multiple y-axes will be created.

8.12.2 Diagram view

The left-hand limit of the x-axis is preset to the time when the chart was activated. The right-hand limit will "grow" each time the chart is refreshed following the time entered in the "Interval" parameter. Similarly, the y-axes will be adapted to allow all measurements to be displayed. To the right of the diagram, the values of all displayed variables are by default displayed as per the activation date of the diagram and the corresponding time stamp (date and time).

Displaying measurements at a specific time

As long as the chart is activated, you can display the precise measurements at a given time.

- Place the mouse cursor in the diagram.
  A vertical line will appear.

To the right of the diagram, the values of all displayed variables are displayed as per the marked date in plain language and the corresponding time stamp.

Adapting the displayed date range

Additionally, the displayed date range can be reduced, for example in order to monitor development over a specific period in greater detail.

- Click the **Zoom In** button.
  The entire development, from activation of the diagram to the current date, is no longer displayed. Each time you click on this button, the displayed date range gets smaller.
- Click on the **Shift Forward** button to shift the start date of the displayed range forwards to the current date.
- To shift the start date of the displayed range back to the chart's activation date, click on the **Shift Back** button.
- In the same way, click on the **Zoom Out** button to enlarge the displayed date range.

Undocking the charts from the browser window

By default, the charts are displayed directly in the browser window underneath the relevant title bar. Alternatively, each chart can also be displayed in a separate window.

Note:
Decoupling from the website is **not** available for Internet Explorer. This button is missing in such cases.

- Click on the **Undock** button for the required chart.
  The chart will now be displayed in a separate window, and the message "Chart is undocked" will appear in the main window underneath the title.

Fig. 45: Undocked chart

The separate windows of the charts can be moved and resized independently of the PDU website itself. This function may be used for multiple charts, allowing you to create a complete overview on the screen of your PC.

- In a separate window, click on the **Dock** button or simply close the window to display the chart underneath the title bar in the main window once again.

8.12.3 Evaluating the CSV files

The diagrams are generated from the data from CSV files. This data may be downloaded from the PDU via FTP and then evaluated separately (e.g. using a spreadsheet program like Excel).

The maximum size of a CSV file is 4 GB. Once this limit has been reached, the CSV file is saved as a backup file, and a new CSV file is automatically created. Once this second file too reaches the 4 GB limit, the first backup file is deleted when a new backup file is generated.

Downloading the CSV files

- Establish a connection between a PC and the PDU (see section 11.1 "Establishing an FTP connection").
- In the left-hand subwindow (PC), switch to any folder in which you want to store the CSV files.
- In the right-hand subwindow (PDU), switch to the "download" folder and then the sub-folder "usb-stick/records".
- Right-click the required CSV file and select "Download".

The CSV files are named according to the convention "chart.##.json.csv" whereby "##" is the number of the respective chart ("01" to "16").

Reading the CSV files into Excel

Below, we describe how a CSV file can be read for evaluation in Excel.

Note:
In principle, the CSV files could also be read in another spreadsheet program. However, the procedure may vary.

- First generate an empty spreadsheet in Excel.
- In Excel, select the CSV file you wish to read by clicking on **Data** > **From text** and then follow the Text Import Wizard.
- Please note the following settings:
  Step 1 of 3:
  – Data type: Delimited
  – Start import at row: 1
  – File origin: Windows (ANSI)
  Step 2 of 3:
  – Delimiters: Tab
  Step 3 of 3:
  – Column data format: Standard
- In step 3 of 3, click on the **Other...** button to define the decimal separators (Setting "Dot") and thousands separators (setting "Comma") used in the CSV file. Depending on the country-specific settings, these may already be preset by default.

Note:
If other separators are set for the numerical data, the time specified in column 2 may not be converted correctly later.

Display of the CSV files is subdivided into three zones:

– **Zone 1:** Line 1 displays general information about the chart as per the configuration (e.g. name of chart, description, start date).
– **Zone 2:** Separated by an empty line, from line 3 onwards, information about the variables recorded in the chart is given. The first two columns are particularly important in this connection.
  Column 1: Name of variable. These names are used as the "Title" in zone 3.
  Column 2: Precise description of the measurements recorded.
– **Zone 3:** Again separated by an empty line, finally, the time stamp and all recorded measurements are given.
  Column 1 (Time0): Unix time (number of seconds that have elapsed since 1 January 1970). This time cannot be used in Excel (or at least not easily).
  Column 2 (Time1): Time specification that may be used in Excel.

– **Columns 3 to max. 8:** The actual measurements are given in these columns.

The time specified in column 2 must be formatted as follows in order to convert it into a readable format:

- Highlight all the times in column 2.
- Right-click the highlighted range, and in the context menu select the entry "Format cells".
- In the "Format cells" dialog, on the "Numbers" tab in the "Category" column, and select the entry "Special".
- Enter the number format "DD.MM.YYYY hh:mm:ss" in the "Type" box.

  The time stamp will then be output as a date and time and can therefore be used, for example, in a diagram.

9 Commissioning the slave PDU managed

9.1 Switching on

Once the electrical connection has been established, the PDU will start automatically (see section 5.4 "Electrical connection of the PDU metered/switched/managed"). Separate activation is not required.

9.2 Display elements

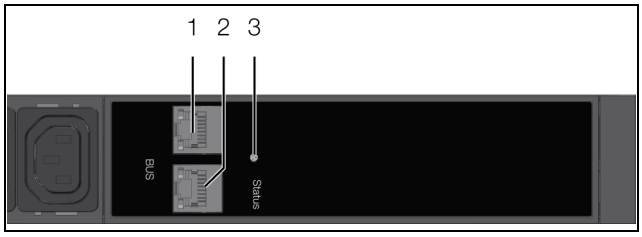

Fig. 46: Display elements and connections of the slave PDU managed

Key

1 CAN bus connection (daisy chain) for CMC III Processing Unit, PDU metered/switched/managed and CMC III sensors, 24 V ⎓

2 Second CAN bus connection, 24 V ⎓

3 Multi-LED for status display

9.3 LED displays

A multi-LED for status display is integrated into the front of the PDU (fig. 46, item 4). Further LEDs are located on the two CAN bus connections (fig. 46, items 1 and 2).

9.3.1 Multi-LED displays

The status of the slave PDU managed is indicated by the steady light on the multi-LED.

Colour	Status
Red	Invalid measured value

Tab. 87: Multi-LED steady light

A flashing code on the multi-LED indicates a status change in the PDU:

Colour	Status
Green	When the measured value changes, or at least every 5 seconds.
Orange	The slave PDU managed has "warning" status. Fast flashing: upper limit value exceeded. Slow flashing: lower limit value undercut.
Red	The slave PDU managed has "alarm" status. Fast flashing: upper limit value exceeded. Slow flashing: lower limit value undercut.

Tab. 88: Multi-LED flashing codes

Colour	Status
Blue	Communication via the CAN bus.
Purple	Update of the slave PDU managed in process.

Tab. 88: Multi-LED flashing codes

9.3.2 LED displays on the CAN bus connection

A red and a green LED are located on the CAN bus connection. They display the status of the CAN bus.

Colour	Status
Green (steady light)	Communication via the CAN bus is possible.
Red (flashing)	Communication error.

Tab. 89: LEDs on the CAN bus connection

EN

10 Operating the slave PDU managed

10.1 General information

After logging on to the CMC III Processing Unit or the PDU metered/switched/managed, the Web interface for operating the device is displayed.

- First select the "PDU-MAN-SLAVE" entry in the navigation area.

Similar to the CMC III Processing Unit, the **Configuration** tab can be used to individually configure the access rights for the slave PDU managed (**Device Rights** symbol) and the alarm messages (**Alarm Configuration** symbol).

All of the settings for the slave PDU managed are made under the **Observation** tab.
Only editable parameters are described in the following sections 10.2 "Device" to 10.4 "Sockets". There are also display values that provide information.

10.2 Device

General settings for the PDU are configured at the "Device" level.

Parameter	Explanation
Description	Individual description of PDU.
Location	Installation location of PDU

Tab. 90: Settings at "Device" level

Parameters that provide detailed information about the PDU, such as the software and hardware versions used, are also displayed. It is advisable to have such information to hand, particularly in order to ensure fast troubleshooting of queries with Rittal.

10.3 Unit

More advanced settings for the PDU and individual phases are made at the "Unit" level.

10.3.1 Frequency

Only the following parameter is displayed at this level:

Parameter	Explanation
Value	Frequency of power supply.

Tab. 91: Display at "Frequency" level

10.3.2 Power Active

Power limits for the entire PDU are indicated at this level.

Parameter	Explanation
DescName	Individual description of power value.

Tab. 92: Settings at "Power Active" level

Parameter	Explanation
SetPtHigh-Alarm	Upper power limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper power limit; a warning is emitted if this is exceeded.
SetPtLow-Warning	Lower power limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower power limit; an alarm is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 92: Settings at "Power Active" level

Note:
If the value "0" is entered for all limit values at the "Power Active" level, the status of the electrical power is always "OK".

The following parameters are also displayed for power:

Parameter	Explanation
Value	Current power value.
Status	Current status of PDU with respect to power.

Tab. 93: Displays at "Power Active" level

10.3.3 Energy

Below this level, energy settings for the entire PDU are made at subsequent sub-levels.

"Active" sub-level

The following energy parameters are displayed at this level:

Parameter	Explanation
Value	Total energy value of PDU
Runtime	Total runtime of PDU to determine the energy value.

Tab. 94: Displays at "Energy" level

"Active Custom" sub-level
The energy value for the user-defined energy meter can be reset at this sub-level (parameter "ActiveCustom.Value").

Parameter	Explanation
Value	User-defined energy meter. This meter can be reset to the value "0".

Tab. 95: Settings at "Active Custom" level

"Runtime" sub-level
The runtime for the user-defined energy meter can be reset at this sub-level (parameter "ActiveCustom.Runtime.Value").

Parameter	Explanation
Value	Runtime of user-defined energy meter. This time period can be reset to the value "0".

Tab. 96: Settings at "Runtime" level

"Mounting Position" level
Only the following parameter is displayed at this level:

Parameter	Explanation
Mounting Position	Installation direction of PDU ("Vertical up" or "Vertical down").

Tab. 97: Displays at "Mounting Position" level

10.3.4 Phase L1

Below "Phase L1" level, settings for phase L1 of the infeed are made at subsequent sub-levels.

"L1 Voltage" level
Voltage limits for phase L1 are indicated at this level.

Parameter	Explanation
DescName	Individual description of the phase L1 voltage value.
SetPtHigh-Alarm	Upper voltage limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper voltage limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower voltage limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower voltage limit; an alarm message is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 98: Settings at "L1 Voltage" level

Note:
If the value "0" is entered for all limit values at the "L1 Voltage" level, the status of the voltage is always "OK".

The following parameters are also displayed for voltage:

Parameter	Explanation
Value	Current voltage value.
Status	Current status of PDU with respect to voltage.

Tab. 99: Displays at "L1 Voltage" level

"L1 Current" level
Current limits for phase 1 are indicated at this level.

Parameter	Explanation
DescName	Individual description of the phase L1 current value.
SetPtHigh-Alarm	Upper current limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper current limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower current limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower current limit; an alarm message is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 100: Settings at "L1 Current" level

Note:
If the value "0" is entered for all limit values at the "L1 Current" level, the status of the current is always "OK".

The following parameters are also displayed for current:

Parameter	Explanation
Value	Current value of current.
Status	Current status of PDU with respect to current.

Tab. 101: Displays at "L1 Current" level

"Power" level
Settings for the output of phase L1 are made at sub-levels below the "Power" level.

"Factor" sub-level
The power factor is displayed at this level

Parameter	Explanation
Value	Power factor This value is preset to "1" and cannot be altered.

Tab. 102: Displays at "Factor" level

"L1 Power" sub-level
Phase 1 power limits are indicated at this level.

Parameter	Explanation
DescName	Individual description of the phase L1 power value.
SetPtHigh-Alarm	Upper power limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper power limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower power limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower power limit; an alarm is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 103: Settings at "L1 Power" level

Note:
If the value "0" is entered for all limit values at the "L1 Power" level, the status of the voltage is always "OK".

The following parameters are also displayed for power:

Parameter	Explanation
Value	Current power value.
Status	Current status of PDU with respect to power.

Tab. 104: Displays at "L1 Power" level

"Reactive" sub-level
The reactive power is displayed at this level

Parameter	Explanation
Value	Current reactive power value.

Tab. 105: Displays at "Reactive" level

"Apparent" sub-level
The apparent power is displayed at this level

Parameter	Explanation
Value	Current apparent power value.

Tab. 106: Displays at "Apparent" level

"Energy" level
Below the "Energy" level, energy settings for phase L1 are made at subsequent sub-levels.
"Active" sub-level
The energy is displayed at this level

Parameter	Explanation
Value	Total energy.

Tab. 107: Displays at "Active" level

"Active Custom" sub-level
The current energy since the last meter reset is displayed at this level.

Parameter	Explanation
Value	Energy since the last meter reset.

Tab. 108: Settings at "Active Custom" level

"Apparent" sub-level
The apparent energy is displayed at this level

Parameter	Explanation
Value	Apparent energy

Tab. 109: Displays at "Apparent" level

10.3.5 Phase 2 and phase 3
For PDU variants with 3-phase infeed, the same settings as for phase L1 can be implemented here for phases L2 and L3 (see section 10.3.4 "Phase L1").

10.4 Sockets
Below the "Sockets" level, settings for the individual sockets of the slave PDU managed are made at subsequent sub-levels.

10.4.1 Socket 01
Below "Socket 01" level, settings for the first socket are made at subsequent sub-levels.
"General" level
General settings for the socket are made at the "General" level.

Parameter	Explanation
DescName	Individual description of the socket.

Tab. 110: Settings at "General" level

Parameter	Explanation
Relay	Assign a switching command for the socket. Off On Off 10 s Off 30 s Off 60 s
Grouping	Group number to which the socket is assigned.

Tab. 110: Settings at "General" level

If individual sockets are assigned to a joint group, all sockets in that group are switched together. This can be activated via the website or a task (see the assembly, installation and operating instructions for the CMC III Processing Unit for further details). It is irrelevant which socket in the group is switched.
Consequently, it is neither necessary to switch each of these outputs individually, nor must a separate task be created for every single one of these outputs.
The following parameters are also displayed for the socket at the "General" level:

Parameter	Explanation
Circuit	String or phase to which the socket is assigned.
Socket Type	Type of connection socket.
Status	Current status of socket.

Tab. 111: Displays at "General" level

"Current" level
Limits for the socket current are indicated at this level.

Parameter	Explanation
DescName	Individual description of current value for the socket.
SetPtHigh-Alarm	Upper current limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper current limit; a warning message is emitted if this is exceeded.
SetPtLow-Warning	Lower current limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower current limit; an alarm message is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 112: Settings at "Current" level

Note:
If the value "0" is entered for all limit values at the "Current" level, the status of the current is always "OK".

The following parameters are also displayed for the current:

Parameter	Explanation
Value	Current value of current.
Status	Current status of socket with respect to current.

Tab. 113: Displays at "Current" level

"Power" level
Below the "Power" level, settings for the socket power are made at subsequent sub-levels.
"Factor" sub-level
The power factor is displayed at this level

Parameter	Explanation
Value	Power factor depending on the current or most recently connected load. This value may be between "-1" and "1" and cannot be altered.

Tab. 114: Displays at "Factor" level

"Power" sub-level
Limits for the socket power are indicated at this level.

Parameter	Explanation
DescName	Individual description of the socket power value.
SetPtHigh-Alarm	Upper power limit; an alarm message is emitted if this is exceeded.
SetPtHigh-Warning	Upper power limit; a warning is emitted if this is exceeded.
SetPtLow-Warning	Lower power limit; a warning message is emitted if this is undercut.
SetPtLow-Alarm	Lower power limit; an alarm is emitted if this is undercut.
Hysteresis	Required percentage deviation for undercutting or exceeding the limit values for a status change (see section 16 "Glossary").

Tab. 115: Settings at "Power" level

Note:
If "0" is entered for all limit values at the "Power" level, the status of the power is always "OK".

The following parameters are also displayed for power:

Parameter	Explanation
Value	Current power value.
Status	Current status of PDU with respect to the power.

Tab. 116: Displays at "L1 Power" level

"Reactive" sub-level
The reactive power is displayed at this level

Parameter	Explanation
Value	Current reactive power value.

Tab. 117: Displays at "Reactive" level

"Apparent" sub-level
The apparent power is displayed at this level

Parameter	Explanation
Value	Current apparent power value.

Tab. 118: Displays at "Apparent" level

"Energy" level
Below the "Energy" level, settings for the socket power are made at subsequent sub-levels.
"Active" sub-level
The energy is displayed at this level

Parameter	Explanation
Value	Total energy.

Tab. 119: Displays at "Active" level

"Active Custom" sub-level
The current energy since the last meter reset is displayed at this level.

Parameter	Explanation
Value	Energy since the last meter reset.

Tab. 120: Displays at "Active Custom" level

"Apparent" sub-level
The apparent energy is displayed at this level

Parameter	Explanation
Value	Apparent energy

Tab. 121: Displays at "Apparent" level

10.4.2 Socket 02 ...

At these levels, depending on the PDU variant, the same settings as for socket 1 can be implemented here for the other sockets (see section 10.4.1 "Socket 01").

EN

11 Updates and data backup

Note:
Updates and data backup can only be carried out directly for the PDU metered/switched/managed. For the slave PDU managed, updates and data backups must be carried out via the CMC III Processing Unit website (see assembly, installation and operating instructions for the CMC III Processing Unit).

FTP access to the PDU is required in order to perform software updates and for data backup. For this reason, FTP access should be blocked as a general rule and only briefly activated to perform these tasks (see section 8.5.4 "File transfer configuration"). Access via SFTP is always possible and cannot be blocked.

11.1 Establishing an FTP connection

To establish an FTP connection, you will need the IP address of the PDU. If this address is not known, because, for example, the DHCP function is activated, the IP address may be displayed directly on the PDU display (see section 7.4 "Operating using the control components on the front").

An appropriate FTP client program is also required to establish an FTP connection (or SFTP connection). Rittal recommends the use of FileZilla.

- Install an FTP client program on the computer you wish to use to establish the FTP connection to the PDU.
- Establish the network connection between the PDU and the computer.
- Ensure that the PDU and the computer have the same address range.
- Enter the appropriate access data in the FTP program.
  The following access data is stored by default:
  – IP address: 192.168.0.200
  – Username: admin
  – Password: admin
  – Port: 21 (FTP) or 22 (SFTP)
- Start the connection between the computer and the PDU, remembering to activate the setting: "Bypass proxy settings".

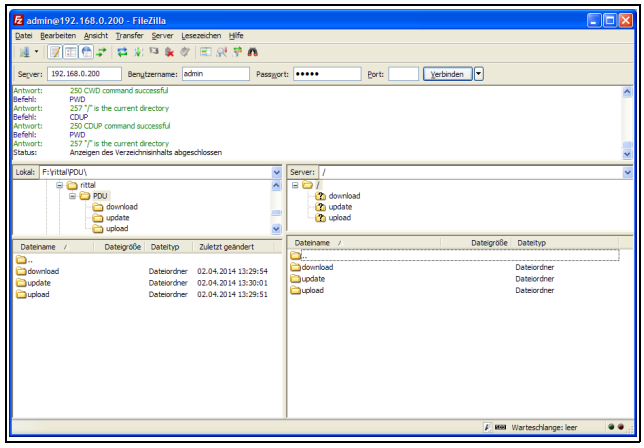

Fig. 47: FileZilla

The left-hand subwindow now shows the folder structure and the content of the PC; the right-hand subwindow contains the equivalent content of the PDU.

11.2 Performing an update

11.2.1 Notes for performing an update

Observe the following security notes for performing an update.

Note:
The user is responsible for performing the update in the associated network environment.

Before starting an update, ensure that the security application connected to the PDU can be interrupted for the duration of the update.

Ensure that you have access to the PDU, because, for example, you will need to check the current status on-site when carrying out the update.

During the update process, the power supply to the PDU must not be interrupted under any circumstances.

If the update is performed using the USB connection, under no circumstances must the USB device be removed during the update process.

None of the connected components may be disconnected from the PDU during the update process.

Under some circumstances, an update can reset the PDU settings to their factory state.

EN

Alongside the two options for performing an update via USB or via (S)FTP described in this section, it can also be implemented via the website of the PDU metered/switched/managed (see section 8.6.6 "Firmware Update").

11.2.2 Downloading the software update

A software update for the PDU can be downloaded from the Internet address specified in section 17 "Customer service addresses". The update will be provided as a tar archive.

- Download the current software version from the website and save it on your computer.

11.2.3 Update via USB

Observe the following notes for updating the PDU via USB:

- The USB storage medium used for the update must be formatted as FAT.
- In addition to the file for the software update, any other data may be present on the USB storage medium.

Proceed as follows to perform the update:

- Copy the downloaded tar file into the root directory of the USB storage medium.
- Start the PDU if necessary.
- Wait until the multi-LED on the front is continuously illuminated green, orange or red or is flashing.
- Then insert the USB storage medium into the appropriate USB slot on the front of the PDU.

The update process starts automatically after a few seconds. This is indicated by a red flashing of the multi-LED (so-called heartbeat, alternately long and short).

If the current software version (or a later version) is already installed on the PDU, no update will be performed.

Depending on the number of connected sensors that are also updated, the complete update process takes approx. 15 minutes.

11.2.4 Update via FTP or SFTP

Proceed as follows to perform the update:

- Establish a connection between a PC and the PDU (see section 11.1 "Establishing an FTP connection").
- Switch to the "update" folder in the right-hand subwindow (PDU).
- In the left-hand subwindow (PC), switch to the folder in which you stored the update file previously.
- Right-click the update file and select the "Upload" action.

The update process starts automatically after a few seconds. This is indicated by red flashing of the multi-LED (so-called heartbeat, alternately long and short).

11.2.5 Finalizing the update

The system reboots automatically when the PDU update has finished. On completion of booting, the LED on the front indicates the PDU status: green, orange or red.

This may be followed by an update of the connected sensors. During this operation, the status LED of the sensors flashes fast, while the status LED of the PDU flashes white. The sensor currently being updated also flashes purple.

Note:
Under no circumstances may the sensors be disconnected from the PDU during the update.

The update of the PDU is complete when the following conditions have been fulfilled:

1. The LED on the front of the PDU is illuminated according to its status: green, orange or red.
2. The LEDs on the bus connection of the sensors are illuminated green.
3. The multi-LEDs of the sensors behind the front cover flash blue.

The progress of the update is logged in the "*.status" file. Depending on the type of update process, this file is located either in the root directory of the USB storage medium or in the Update folder of the PDU. The status file is a text file that can be opened with an editor or a text processing program.

- For an update via (S)FTP or via the website: Transfer this file using an FTP connection from the Update folder of the PDU to a PC.
- For an update via USB: Copy instead from the USB storage medium to a PC.
- Open the file with an editor and check whether the update was performed successfully or whether error messages have been issued.

Note:
Finally, press "Ctrl"+"F5" in the browser to reload the complete website from the PDU. All the changes will now be effective.

11.3 Performing a data backup

Rittal recommends regular data backups of the PDU configuration.

Proceed as follows to perform a data backup:

- Establish an FTP connection between a PC and the PDU (see section 11.1 "Establishing an FTP connection").
- In the left-hand subwindow (PC), switch to any folder in which you want to store the data backup.
- Switch to the "download" folder in the right-hand subwindow (PDU).
- Right-click the "cmcIIIsave.cfg" file (from software version V3.11.00 onwards) and select the "download" action.

The settings and configurations of all connected components as displayed currently for the individual sensors on the **Observation** (see section 8.3 "Observation index tab") and **Configuration** (see section 8.4 "Configuration

index tab") tabs are stored in this file.
For a second PDU, this configuration file can likewise be dragged to the upload directory in the same way. All general settings (other than the TCP/IP settings) are then taken from this file. If the same sensors, etc. are also installed in the same sequence on the second PDU, all limit values of these sensors are also transferred.

Note:
It is not possible to transfer a configuration file that was saved from a PDU with an older software version to a PDU with a newer software version.

11.4 Saving additional information locally

Just as with a data backup, further files can be downloaded onto a PC from the "download" folder. These are text files with the following content:

1. "Devices.cmc3": The configurations of all connected components as displayed for the individual sensors on the **Observation** (see section 8.3 "Observation index tab") and **Configuration** (see section 8.4"Configuration index tab") tabs.
2. "Logging.cmc3": Complete, i.e. unfiltered log information for the PDU (see section 8.10 "Logging").
3. "Configuration.cmc3": Configuration of the complete "Processing Unit" system as can also be displayed on the **Configuration** tab (see section 8.4 "Configuration index tab").
4. "OID_List.cmc3": List of all OIDs of the variables of the PDU and connected components as required for polling via SNMP.

- If necessary, rename the files on the PC after downloading, to uniquely identify the various different file versions.

EN

12 Inspection and maintenance

12.1 Safety instructions

– Prior to performing any work on the PDU, the unit must be disconnected from the power supply and protected against being switched on again.
– The unit does not need to be opened and this is therefore prohibited.

12.2 Required work

12.2.1 Inspection

The PDU must be checked regularly for complete and correct functioning. Rittal recommends a regular function test when required, but at least once a year.

12.2.2 Servicing

Because the unit is largely maintenance-free, maintenance of the unit is limited to the "inspection" and "cleaning" tasks.

EN

13 Storage and disposal

13.1 Storage

If the device is not used for a long period, Rittal recommends that you disconnect it from the mains power supply and protected from damp and dust.

13.2 Disposal

Since the PDU consists primarily of an aluminium section plus electronics (circuit board, cabling), the device must be passed on to the electronic waste recycling system for disposal.

EN

14 Technical specifications

14.1 General technical specifications

Technical specifications	
Input voltage range (L – N)	90 V…260 (400) V AC, 50…60 Hz
Input current	16 A/32 A/63 A (depending on variant)
No. of phases	1 or 3 depending on PDU variant
PDU inherent supply	Integral long-range SMPS, error-tolerant from all phases
PDU power consumption	Typically 5…15 W (depending on variant)
Redundant power supply via PoE	Yes (for PDU switched, PDU managed)
Marking of phases (3-phase PDUs only: L1, L2, L3)	Brown, black, grey
Slots type EN 60 320/C13	Quantity depends on version, see section 14.2 "Allocation of fuses, phases and slots".
Slots type EN 60 320/C19	Quantity depends on version, see section 14.2 "Allocation of fuses, phases and slots".
No. of circuit-breakers	2 (single-phase) or 6 (3-phase) with 32 A version, 12 (3-phase) with 63 A version
Electromagnetic circuit-breaker	16 A, type C (only with 32 A versions)
Slots individually switchable	Yes (not for PDU metered) (bistable relay, minimal inherent consumption)
Connector, PDU input	EN 60 309/CEE (depending on PDU version), EN 60 320/C20 for 7955.201/.301/.401/.901, BS 1363 UK plug for 7955.520/.530/.540/.940
Length of connection cable	3 m
Connection cable type	H05-VV
No. of wires	3/5 (1-phase/3-phase PDU)
Cable cross-section	2.5 mm^2/4.0 mm^2 (for 16 A/32 A versions)
PDU enclosure width	44 mm (1 U), not for 7955.238
PDU enclosure depth	62 mm for PDU metered 85 mm for PDU switched, PDU managed and slave PDU managed
PDU enclosure height (length)	Depends on product variant
PDU material	Aluminium, anodised in RAL 9005 (black)
PDU mounting adaptor	Plastic, black

Tab. 122: General technical specifications

Technical specifications		
Measurement functions (input/ phase or output slot)	Values recorded	Voltage (V), current (A), frequency (Hz), active power (kW), active energy (kWh), apparent power (VA), power factor, neutral-conductor measurement / load imbalance detection, fuse monitoring (for 32 A/63 A versions)
	Voltage measurement range	90 V…260 V
	Voltage resolution	0.1 V
	Voltage accuracy	2%
	Current measurement range	0…16/32/63 A (depending on PDU variant)
	Current resolution	0.1 A
	Current accuracy	2%
	Frequency accuracy	2%
	Active power (kW) accuracy	2%
	Apparent power (VA) accuracy	2%
	Active energy (kWh) accuracy	1%
	Power factor accuracy	2%
	Freely settable limit values for warning/alarm	Yes
Operating hours meter		Yes
Display		OLED, RGB 128 x 128 pixels (not for slave PDU managed)
LED for switching status of relays per slot		Yes (not for PDU metered)
Network interface		RJ 45, integral Web server (not for slave PDU managed)
Supported protocols		HTTP, HTTPS, SSL, SSH, NTP, Telnet, TCP/IP v4 and v6, DHCP, DNS, NTP, Syslog, SNMP v1, v2c and v3, FTP/SFTP (update/file transfer), e-mail forwarding (SMTP), LDAP, OPC-UA
User administration including rights management		Yes
LDAP(S)/Radius*/Active Directory connection		Yes
USB port for firmware update and data logging functions		Yes (not for slave PDU managed)
CAN bus interface		RJ 45, for connecting sensors
CAN sensor types		Temperature, temperature/humidity (combined), infrared access sensor, vandalism sensor (for PDU metered/ switched/managed)
Max. number of sensors per PDU		4, sensor configuration freely selectable, including 4 of the same type (for PDU metered/switched/managed)
Plug & play drivers in the Rittal RiZone DCIM software		Yes
Conformity		CE
Standards	Safety	EN 60 950-1
	EMC	EN 55 022/B, EN 61 000-4-2, EN 61 000-4-3, EN 61 000-6-2, EN 61 000-6-3

Tab. 122: General technical specifications

EN

Technical specifications	
Safety Directive	2006/95/EC
EMC Directive	2004/108/EC
MTBF (at 40°C)	70,000 hours
Protection category	IP 20 (IEC 60 529)
Protection category	3
Contamination level	2
Overvoltage category	II
Environmental properties	RoHS
Storage temperature	-25°C…+70°C
Ambient temperatures	0°C…+45°C
Ambient humidity	10...95% rel. humidity, non-condensing
Connector latch C13 and C19	1 x (further optional DK 7955.020), not for UK versions
C13 covers included with supply	8 x (further optional DK 7955.010), not for UK versions
C19 covers included with supply	3 x (further optional DK 7955.015), not for UK versions
Warranty	24 months

Tab. 122: General technical specifications

Note:
All functions in the table marked with an "*" are currently under preparation and will be available as software updates. These software updates can be downloaded from the website specified in section 17 "Customer service addresses".

14.2 Allocation of fuses, phases and slots

Model No. DK	PDU infeed	Fuse (type C16 A)	Total slots	
			C13	C19
7955.X01	230 V/1~/16 A	–	12	–
7955.X10	230 V/1~/16 A	–	24	4
7955.X11	230 V/1~/32 A	2 x	24	4
7955.X31	400 V/3~/16 A	–	18	3
7955.X32	400 V/3~/16 A	–	24	6
7955.X33	400 V/3~/32 A	6 x	24	6
7955.X34	400 V/3~/32 A	6 x	36	6
7955.X35	400 V/3~/16 A	–	42	–
7955.X36	400 V/3~/32 A	6 x	48	–

Tab. 123: Allocation of fuses – PDU international versions

Model No. DK	Phase 1		Phase 2		Phase 3	
	String 1 (F1)	String 1 (F2)	String 2 (F1)	String 2 (F2)	String 3 (F1)	String 3 (F2)
7955.X01	12 x C13	–	–	–	–	–
7955.X10	24 x C13 + 4 x C19	–	–	–	–	–
7955.X11	12 x C13 + 2 x C19	12 x C13 + 2 x C19	–	–	–	–
7955.X31	6 x C13 + 1 x C19	–	6 x C13 + 1 x C19	–	6 x C13 + 1 x C19	–
7955.X32	8 x C13 + 2 x C19	–	8 x C13 + 2 x C19	–	8 x C13 + 2 x C19	–
7955.X33	8 x C13	2 x C19	8 x C13	2 x C19	8 x C13	2 x C19
7955.X34	6 x C13 + 1 x C19	6 x C13 + 1 x C19	6 x C13 + 1 x C19	6 x C13 + 1 x C19	6 x C13 + 1 x C19	6 x C13 + 1 x C19
7955.X35	14 x C13	–	14 x C13	–	14 x C13	–
7955.X36	8 x C13	8 x C13	8 x C13	8 x C13	8 x C13	8 x C13

Tab. 124: Allocation of phases and slots – PDU international versions

Model No. DK	PDU infeed	Fuse (type C16 A)	Total slots		Phase 1	
			UK plug	C19	String 1 (F1)	String 1 (F2)
7955.520 **7955.530** **7955.540** **7955.940**	230 V/1~/13 A	–	16	–	16	–
7955.521	230 V/1~/16 A	–	20	4	20 x UK + 4 x C19	–
7955.531 **7955.541** **7955.941**	230 V/1~/16 A	–	16	4	16 x UK + 4 x C19	–
7955.522	230 V/1~/32 A	2 x	20	4	10 x UK + 2 x C19	10 x UK + 2 x C19
7955.532 **7955.542** **7955.942**	230 V/1~/32 A	2 x	16	4	8 x UK + 2 x C19	8 x UK + 2 x C19

Tab. 125: Allocation of fuses, phases and slots – PDU UK versions

EN

15 Accessories

The following sensors from the CMC III system may be connected to the PDU metered/switched/managed via the CAN bus interface.

Accessories	Model No. DK
CMC III temperature sensor	7030.110
CMC III temperature/humidity sensor	7030.111
CMC III infrared access sensor	7030.120
CMC III vandalism sensor	7030.130
CMC III CAN bus connection cable RJ 45, length 0.5 – 10 m	See Catalogue

Tab. 126: Accessories for the PDU metered/switched/managed

The following accessories may be used with all PDU variants.

Accessories	Model No. DK
Covers for C13 socket, lockable	7955.010
Covers for C 19 socket, lockable	7955.015
Connector, universal lock for C14/C20 connector	7955.020
Connection cable D/C19, 1.8 m	7200.216
Connection cable C19/C20, 1.8 m	7200.217

Tab. 127: PDU accessories

16 Glossary

Hysteresis:

If one of the upper limit values is exceeded (SetPtHigh) or one of the lower limit values is undercut (SetPtLow), a warning or an alarm is issued **immediately**. For a hysteresis of x%, the warning or the alarm will not clear until an upper limit value is undercut or a lower limit value is exceeded by a difference of x/100 * limit value to the limit value.

MIB (Management Information Base):

The MIB was developed for reading and editing network elements. The MIB for SNMP was defined in RFC 1157; the MIB-II for TCP/IP was defined in RFC 1213. The MIBs are registered as OID with the IANA (Internet Assigned Numbers Authority). Once an object has been assigned to an OID, the meaning may no longer be changed. Any overlapping with other OIDs is prohibited.

SNMP (Simple Network Management Protocol):

The SNMP is a simple network management protocol based on TCP/IP. It was developed to allow network components to be monitored and controlled at a central management station.

Trap:

Trap is the unrequested sending of SNMP messages.

Trap receiver:

The trap receiver is the recipient of SNMP messages.

EN

17 Customer service addresses

For technical queries, please contact:
Tel.: +49(0)2772 505-9052
E-mail: info@rittal.com
Homepage: www.rittal.com

For complaints or service requests, please contact:
Tel.: +49(0)2772 505-1855
E-mail: service@rittal.de

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