blue’Log® XM / XC

Hardware Training

2023-04-24

Werner Darmstadt

CONTENT

- *Explanation of the abbreviations and their meaning in dealing with the blue'Log*
- *Presentation / application of the data loggers blue'Log XM and XC*
- *Comparison of the properties of blue'Log XM and XC with optional licenses*
- *Selection of mc products / components / services based on application examples*
- *HEMS (Hybrid Energy Management System)*
- *Installation of the blue'Log & discussion of the connection strips*

Setup of the blue'Log via the web interface using a browser

- *System - make basic settings*
- *Devices - integration of components*
- *Power control - functions active and reactive power settings*
- *PV system - data connection to VCOM or other systems*

- *Presentation of the "cockpit" functions of blue'Log*
- *Explanation of the extensive PPC (Power Plant Controller) functions*

blue’Log® XM / XC

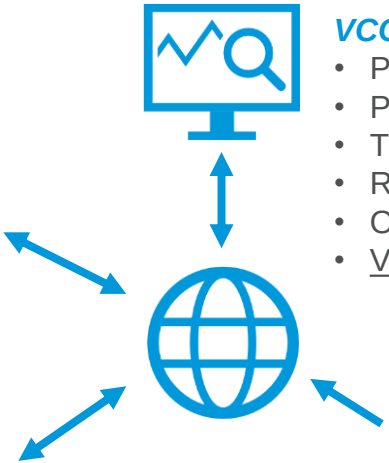
Explanation of the abbreviations or their meaning

Definitions / Abbreviations

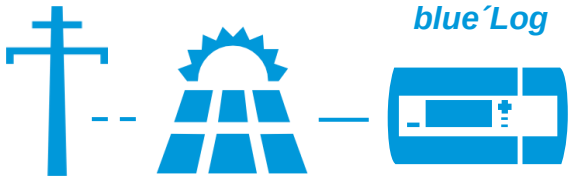
- mc ... meteocontrol
- blue'Log X**M** ... **M**onitoring
- blue'Log X**C** ... **C**ontrolling
- PPC ... **P**ower **P**lant **C**ontroller
- VCOM ... **V**irtual **C**ontrol **R**oom
- API ... **A**pplication **P**rogramming **I**nterface
- PLC ... **P**rogrammable **L**ogic **C**ontroller (SPS)
- DHCP ... **D**ynamic **H**ost **C**onfiguration **P**rotocol
- RPC ... **R**emote **P**ower **C**ontrol
- SCADA ... **S**upervisory **C**ontrol **A**nd **D**ata **A**quisition
- FTP ... **F**ile **T**ransfer **P**rotocol
- HTTP ... **H**yper **T**ext **T**ransfer **P**rotocol
- VPN ... **V**irtual **P**rivate **N**etwork

Technical Overview

VCOM API
Easy data exchange

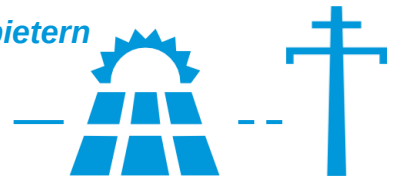


VCOM
- Professional monitoring
- Performance and error analysis
- Ticket system
- Report
- On-site deployment and monitoring app
- VCOM Cloud



blue´Log
Documents

Systeme von Drittanbietern
Import Interface



blue’Log® XM / XC

Introducing the blue'Log X series

blue'Log® XM

MANUFACTURER INDEPENDENT

MONITORING

- Monitoring of up to 100 devices with blue'Log XM
- > 100 days data retention
- Advanced IT security (LDAP, SCEP, SSL, Proxy) (optional)
- 100% data availability through 24/7 operation (blue'Log does not require a restart)
- 1 min. interval values available on blue'Log and in VCOM
- Flexible alarm management
- On-site visualization of the measured values by a diagram generator
- Configuration Backup and Restore
- FTP push (optional)
- Integrated OpenVPN client (optional) for direct marketing
- User Logbook
- New compatibilities for devices without firmware update

blue'Log® XC

COMPLIANT WITH NATIONAL & INTERNATIONAL GRID CONNECTION CONDITIONS

CONTROL

- The heart of the meteocontrol Power Plant Controller (PPC)
- Configuration via the graphical user interface
- Precise active and reactive power control
- Fixed value and characteristic curve control
- Ramp rate control
- Method switching of setpoints
- 24-hour operation without rebooting
- Setpoint feedback (acknowledgement)
- Quick stop
- Logbook (archiving of curtailments)

blue’Log® XM / XC

Comparison of the properties of the blue'Log XM and XC

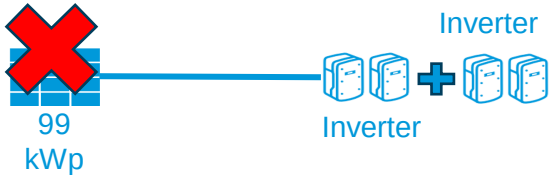
New pricing model from 1 April 2024

Change from kWp to kW

- In the past, the blue'Log was sold in kWp depending on the installed DC power of the PV modules.

- In battery systems, there is no such thing as kWp power, which is why we are now considering AC power.

- More precisely, the maximum AC active power that the system can deliver is taken into account. This corresponds to the sum of the maximum AC active power of the installed inverters.



! A HEMS system has another special feature here.

These changes also apply to the Remote Power Control License (RPC)

	XM Monitoring	XC Control
Monitoring	Max. 100 Devices	Max. 30 Devices
Power Control	No (only Slave)	Yes

Installed power	X-Monitoring	X-Control
≤ 200 kW	blue'Log XM-200	blue'Log XC-200
≤ 1000 kW	blue'Log XM-1000	blue'Log XC-1000
≤ 3000 kW	blue'Log XM-3000	blue'Log XC-3000
≤ 5000 kW	blue'Log XM-5000	blue'Log XC-5000
≤ 10000 kW	blue'Log XM-10000	blue'Log XC-10000
≤ 20000 kW	blue'Log XM-20000	blue'Log XC-20000
≤ 50000 kW		blue'Log XC-50000
≤ 100000 kW		blue'Log XC-100000
> 100000 kW		blue'Log XC-100000+
Project articles	blue'Log XM-Utility	blue'Log XC-Utility

Versions

- Software Features
- Versions

**Maximum AC active power of the system - solar inverter plus battery inverter

License (Direct marketing)
Remote Power Control License XC (graded based on blue'Log performance)

Other licenses
OpenVPN blue’Log XM / XC Lizenz
SFTP / FTP-Push blue’Log XM / XC Lizenz
IT infrastructure (LDAP, SCEP, SSL) Lizenz
Modbus Power Control blue’Log XC Lizenz
SCADA Interface blue’Log XM / XC Lizenz
Zero Feed-In (Automatic grid disconnection) blue’Log XC Lizenz
WEB’log Slave mode blue’Log XM Lizenz
Modbus configurator blue’Log XM / XC Lizenz
External PPC blue’Log XM / XC Lizenz

Licenses

- Licenses graded by asset size
- Optional licenses

blue'Log® XM / XC

Selection of mc products / components / services based on application examples

Article list and necessary components (possible solution)

1 x blue’Log XM-200
1 x Power supply 24V / 1,5A
Setting up the system in the VCOM
VCOM license for 5 years

Use case 1

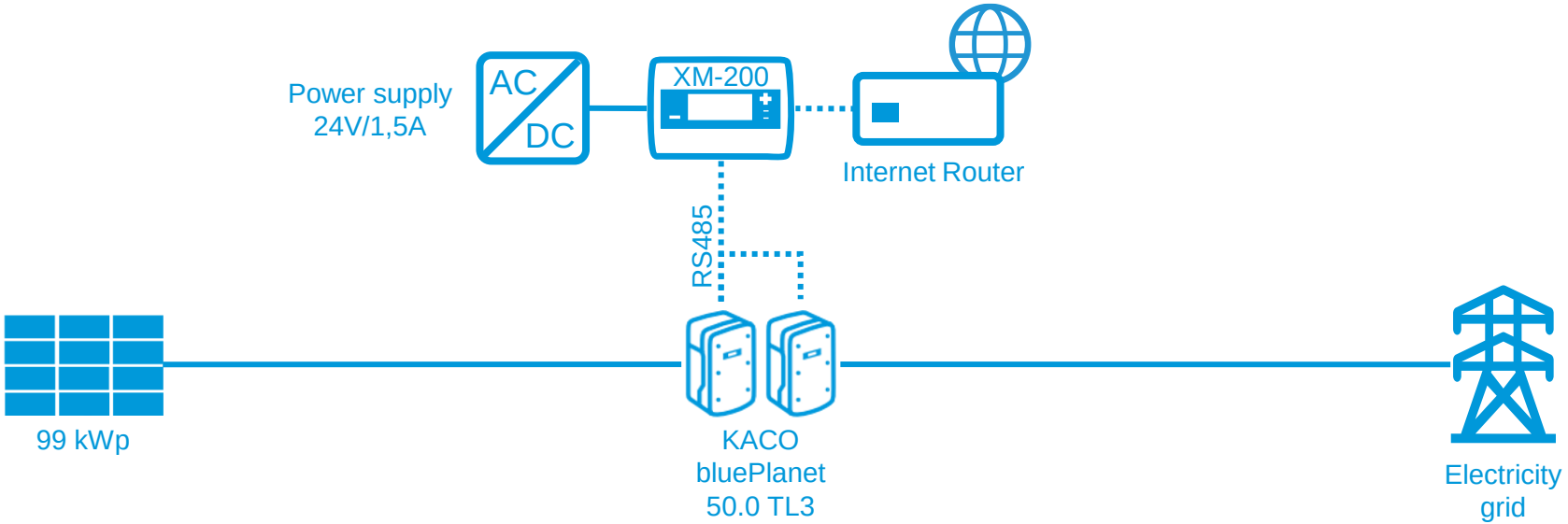
PV System:

- 99 kWp*
- 2 x KACO blueplanet 50.0 TL3, 100kW**
- No Power Control
- Communication: ADSL

- *Maximum kWp active power of the solar collectors
- **Maximum AC active power of the system - solar inverter plus battery inverter

Which components are needed?

Use case 1


Power supply
24V/1,5A
AC
DC
XM-200
Internet Router
RS485
99 kWp
KACO
bluePlanet
50.0 TL3
Electricity
grid

Article list and necessary components (possible solution)

1 x blue’Log XC-200
1 x Power supply 24V / 1,5A
NAG, Schneider Energy meters IEM3155 3 Phase, Modbus, perhaps License Zero Feed In (e.g. in Spain in case of grid shutdown)
Setting up the system in the VCOM
VCOM license for 5 years

Use case 2

PV System:

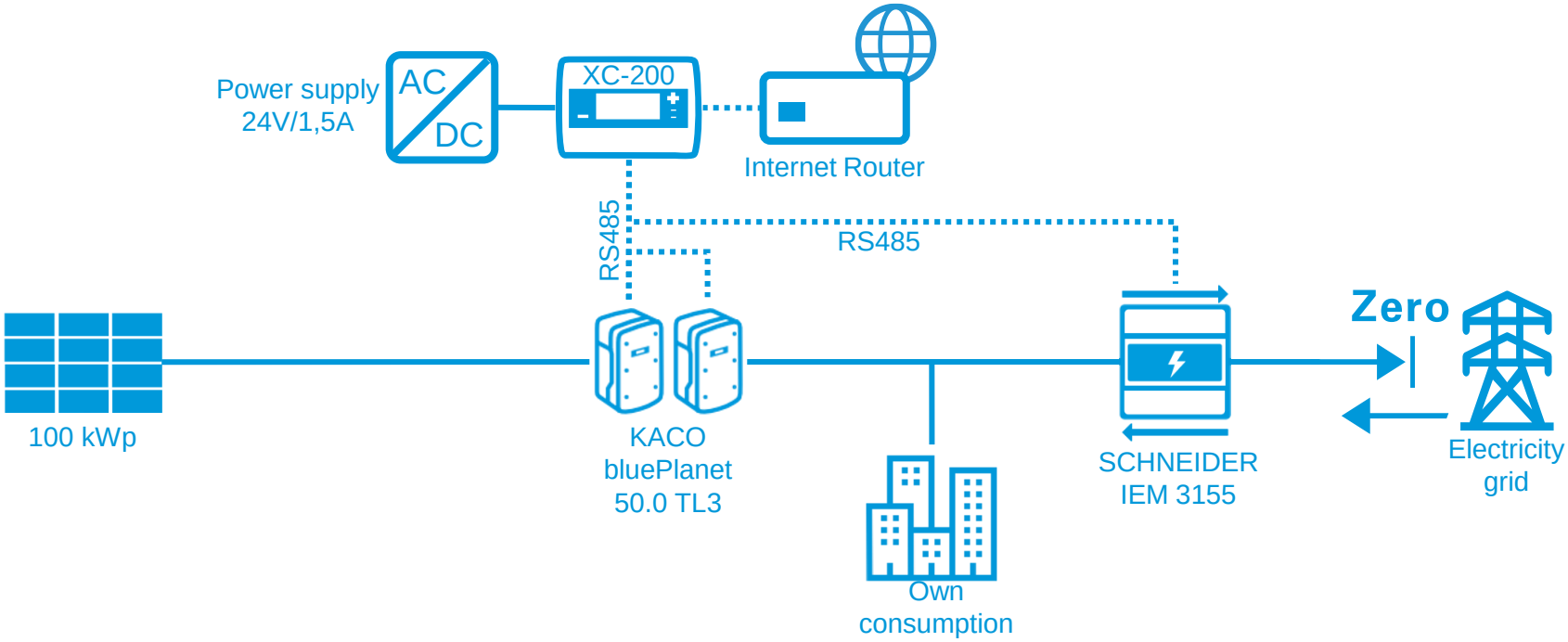
- 100 kWp*
- 2 x KACO blueplanet 50.0 TL3, 100kW**
- Zero-feed-in with Own consumption
- Communication: ADSL

*Maximum kWp active power of the solar panels

**Maximum AC active power of the system - solar inverter plus battery inverter

Which components are needed?

Use case 2


Power supply
24V/1,5A
AC
DC
XC-200
Internet Router
RS485
RS485
100 kWp
KACO
bluePlanet
50.0 TL3
Own
consumption
SCHNEIDER
IEM 3155
Zero
Electricity
grid

Article list and necessary components (possible solution)

1 x blue’Log XC-1000
1 x Power supply 24V / 1,5A
1 x Irradiation sensor SI-RS485TC-T-MB
1 x License Remote Power Control (RPC)
1 x License Open VPN
Certificate provision "direct marketing"
Setting up the system in the VCOM
VCOM license for 5 years

Use case 3

PV System:

- 240 kWp*
- 4 x Sungrow SG60KTL, 240kW**
- Active power control : Digital Signal (0 / 30 / 60 / 100 %)
- Irradiation sensor
- Communication: ADSL

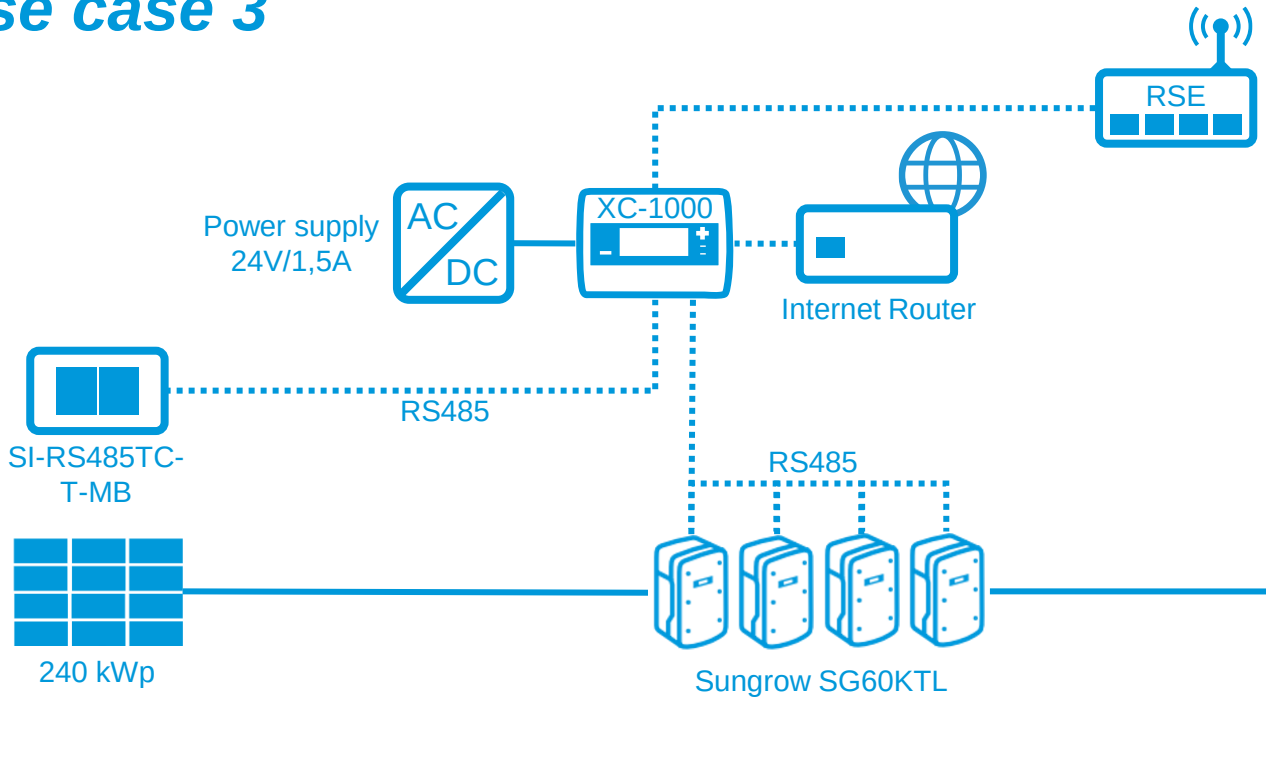
***Maximum kWp active power of the solar panels**

****Maximum AC active power of the system (inverter or**

****Maximum AC active power of the system - solar inverter plus battery inverter**

Which components are needed?

Use case 3



XC-1000 Licenses:

- Remote Power Control (RPC)
- OpenVPN

Article list and necessary components (possible solution)

1 x blue'Log XC-3000 (24 WR)
1 x blue'Log XM-1000 (16 WR)
1 x Power supply 24V / 4,2A
1 x NAG Janitza UMG604
1 x Weather Station WS600-UMB
1 x Power Control Station x-Serie Commercial (Switchboard)
1 x License Remote Power Control (RPC)
1 x License Power Control via Modbus (because of IEC Protokoll)
1 x License Open VPN
Certificate provision "direct marketing"
PLC + programming of the PLC for IEC protocol
Setup / acceptance of the system with installation by meteocontrol
Setting up the system in the VCOM
VCOM License 5 years

Use case 4

PV System:

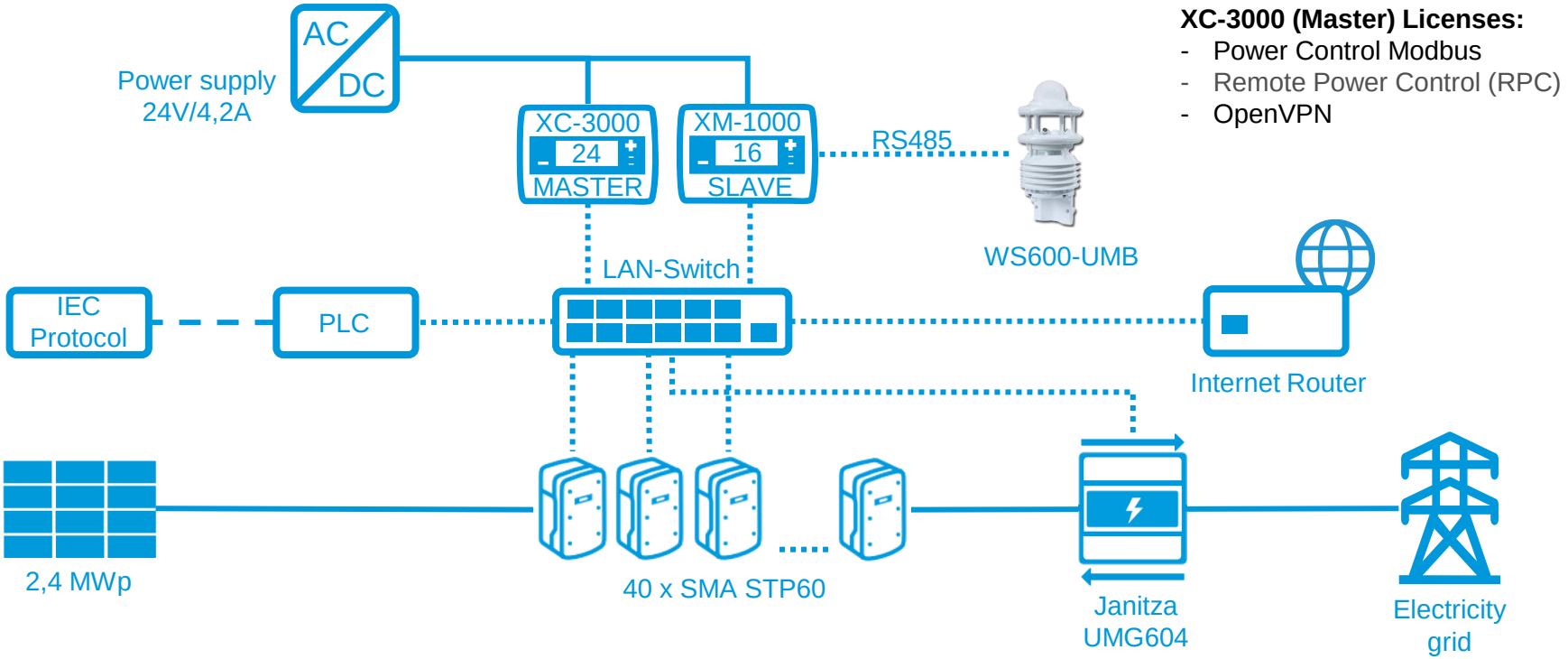
- 2.4 MWp*
- 40 x SMA STP60, 2,4MW**
- Active and reactive power control: IEC Protokoll
- Wetter Station
- Communication: ADSL

Maximum kWp active power of the solar panels

*Maximum AC active power of the system - solar inverter plus battery inverter

Which components are needed?

Use case 4



XC-3000 (Master) Licenses:
- Power Control Modbus
- Remote Power Control (RPC)
- OpenVPN

Article list and necessary components (possible solution)

Setting up the system in the VCOM
VCOM license for 5 years

Use case 5

PV System:

- 515 kWp
- 18 x ABB TRIO-27.6-TL-OUTD
- Existing third-party system for monitoring: Skytron
- Communication: ADSL

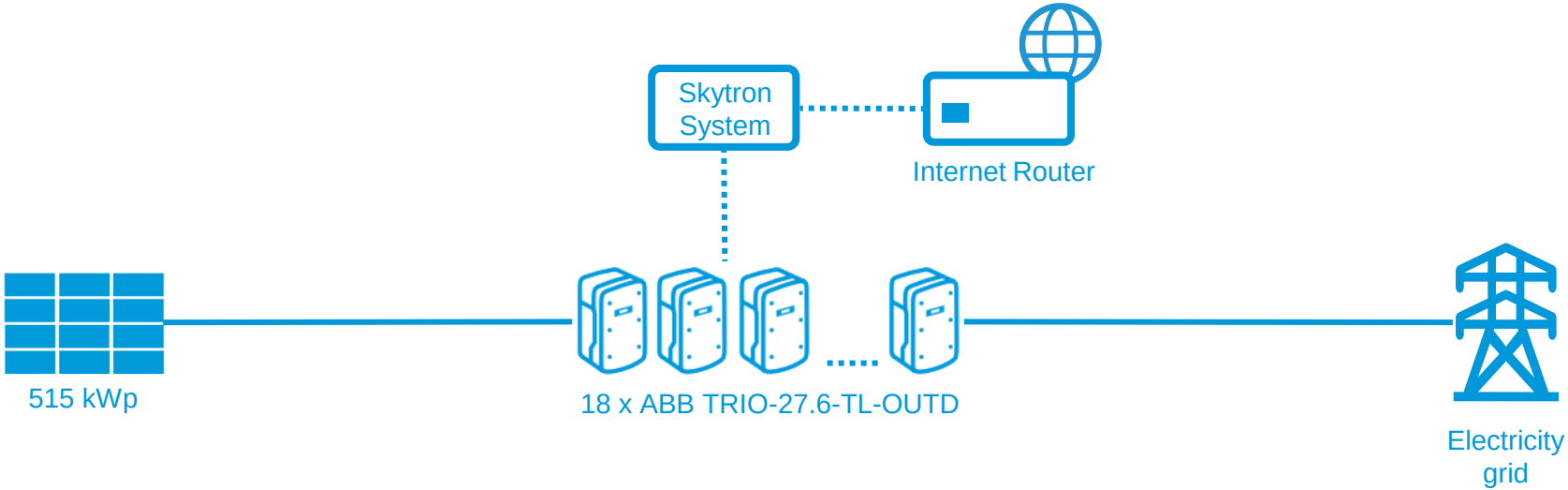
*Maximum kWp active power of the solar panels

**Maximum AC active power of the system (inverter or

**Maximum AC active power of the system - solar inverter plus battery inverter

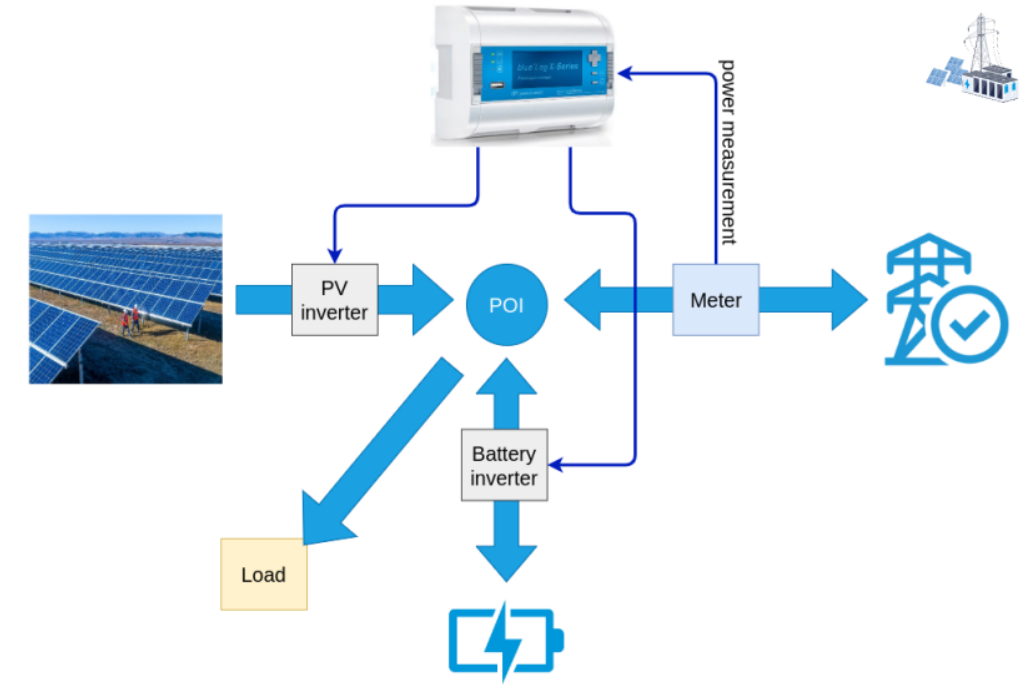
Which components are needed?

Use case 5


Skytron System
Internet Router
515 kWp
18 x ABB TRIO-27.6-TL-OUTD
Electricity grid

HEMS (Hybrid Energy Management System)

blue'Log in conjunction with a HEMS system



PV and Storage

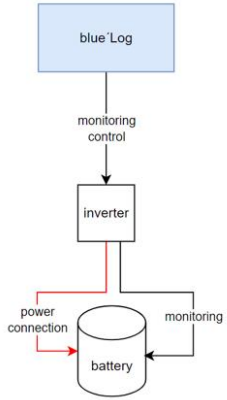
In addition to controlled PV, storage can now be controlled.

Different operation modes (business cases) are supported:

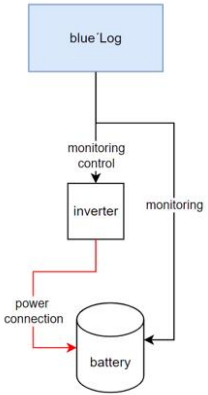
- Solar -self consumption
- Zero feed in
- Band shaving (minimize battery (dis)charge activity)
- Energy shifting
- Energy arbitrage (external energy management)

Battery control

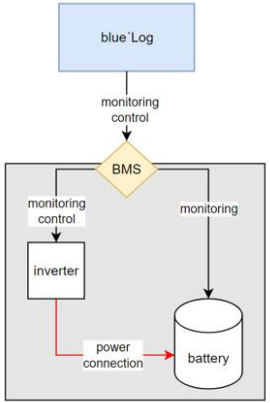
Virtual battery device through inverter



Battery and inverter directly scanned



Battery and inverter through BMS



How does the HEMS connect to the battery energy storage system?

From the HEMS point of view, a ***Battery Energy Storage System*** **(BESS)** consists:

- of a **battery** (that stores the energy, DC side)
- a **battery inverter** (that converts DC/AC).

For HEMS to control and monitor adequately, it requires certain values (e.g. state of charge, active power, etc.). It depends on the system topology of the BESS how HEMS can access the data. This may be different for each manufacturer. Usually, HEMS connects directly to the inverter and/or battery. But sometimes the HEMS only speaks with the battery management system (BMS). Checkout three cases.

Logik Dimensionierung, Lizenzen

System	Product	Article number
PV	blue‘Log XC	(depending on maximum AC power of PV system in kW)
Battery stand-alone	blue‘Log XC	(depending on maximum AC power of battery in kW)
	HEMS license	(depending on battery capacity in kWh)
PV + Battery	blue‘Log XC	(depending on sum of maximum AC power of the battery and the PV system in kW)
	HEMS license	(depending on battery capacity in kWh)

Note for HEMS Systems

- Blue'Log power = total inverter power
- Inverter power in kW
- Battery power in kW
- Battery capacity in kWh
- HEMS license depending on kWh of the battery

Attention: No HEMS license required for monitoring.

The blue'Log XM can already monitor batteries.

Article list and necessary components (possible solution)

- 1 x blue'Log XC-3000
- 1 x AC Adapter 24V / 1.5A
- NAG, Schneider energy meter IEM3155 3 phase
- HEMS License 1000kWh
- Modbus, possibly license Zero Feed In (e.g. in Spain in case of network shutdown)
- Setting up the system in the VCOM
- VCOM license for 5 years

Use Case 6

HEMS-System – Solar/ Battery:

- PV Panel 800kWp*
- Inverter 840kW
- Battery 500kW
- Battery capacity 700kWh

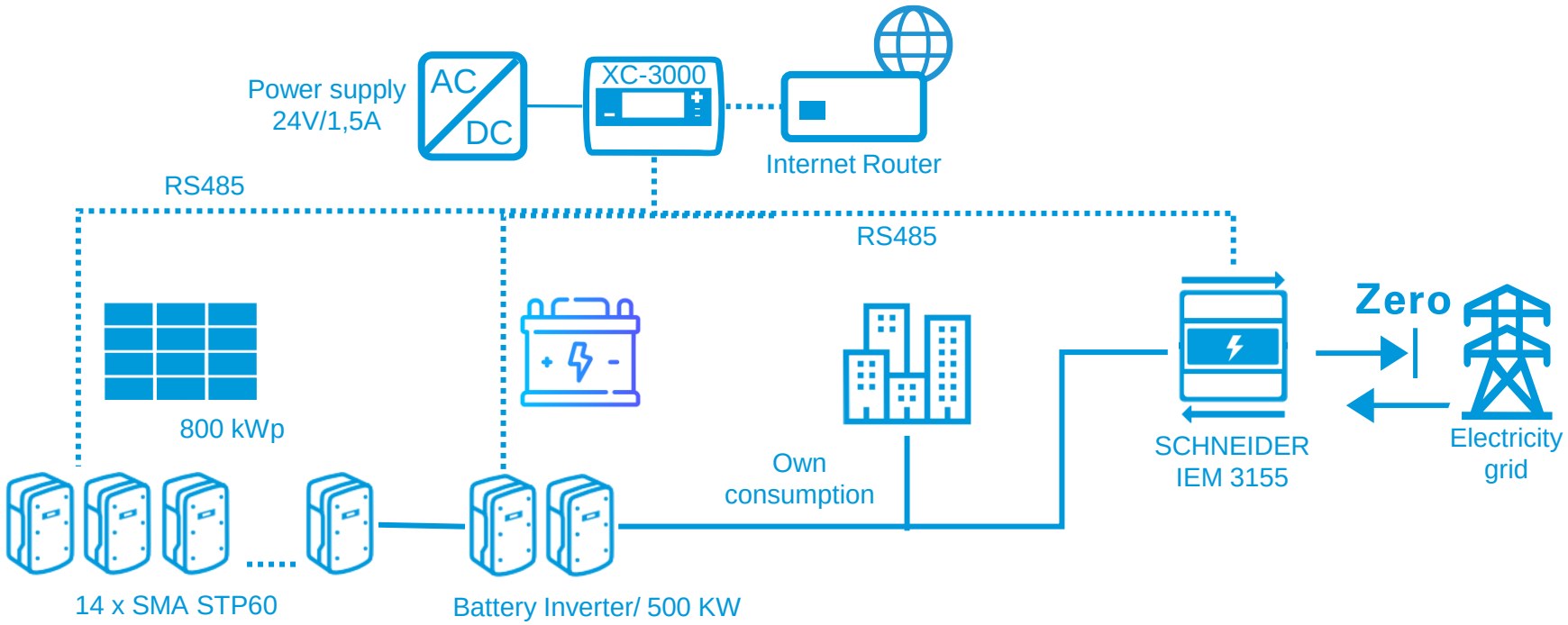
- 14 x SMA STP60**
- Zero-feed-in with self consumption
- Comunication: ADSL

*Maximum kWp active power of the solar panels

**Maximum AC active power of the system - solar inverter plus battery inverter

Which components are required?

Use Case 6


Power supply
24V/1,5A
AC
DC
XC-3000
Internet Router
RS485
RS485
800 kWp
Own
consumption
SCHNEIDER
IEM 3155
Zero
Electricity
grid
14 x SMA STP60
Battery Inverter/ 500 KW

List of items and necessary components (possible solution)

- 1 x blue'Log XC-3000
- 1 x AC Adapter 24V / 1.5A
- NAG, Schneider energy meter IEM3155 3 phase
- HEMS license 3000 kWh
- Setting up the system in the VCOM
- VCOM license for 5 years

Anwendungsfall 7

HEMS-System (Control) - Batterie:

Battery AC power*: 1000 kW

Battery capacity 1400kWh

* AC power via battery inverter

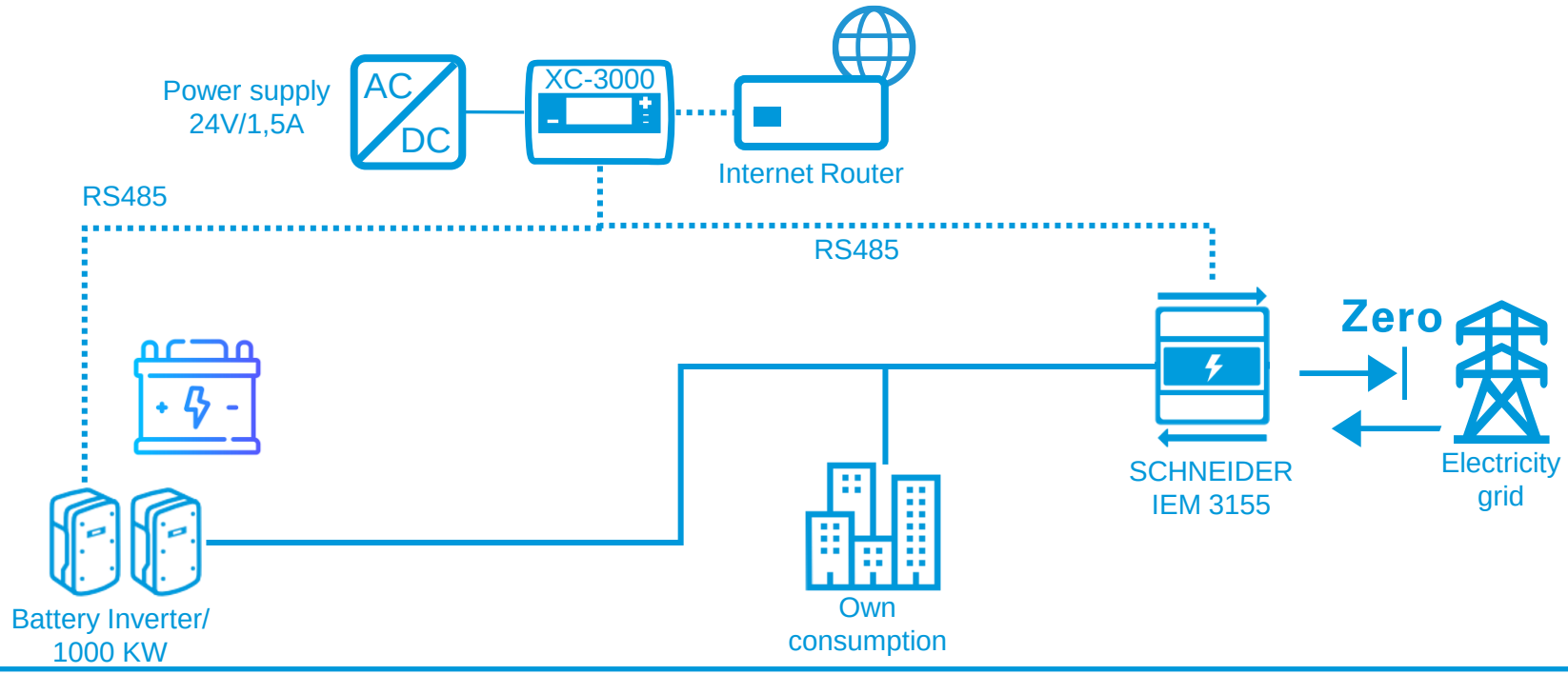
Question:

Do you need a HEMS license if you just want to monitor the battery?

No, the blue'Log XM can already monitor batteries.

Which components are needed?

Use Case 7


Power supply
24V/1,5A
AC
DC
XC-3000
Internet Router
RS485
RS485
Zero
SCHNEIDER
IEM 3155
Electricity
grid
Battery Inverter/
1000 KW
Own
consumption

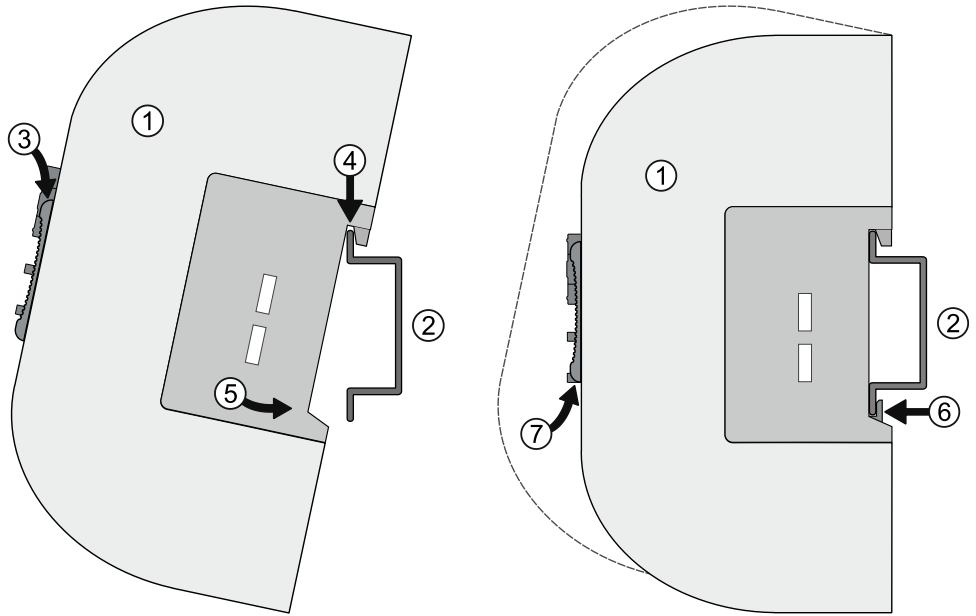
blue’Log® XM / XC

Installation of the blue'Log & discussion of the connection terminals

Installation

DIN rail mounting

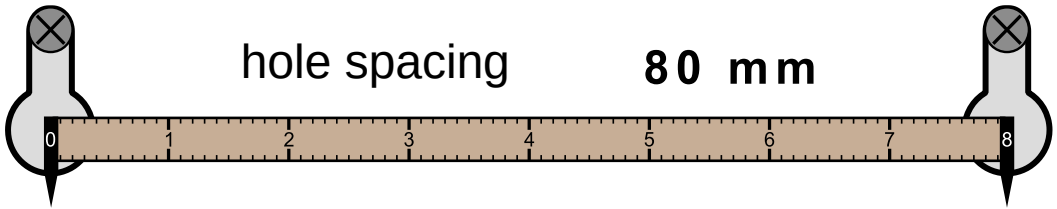
1. blue’Log XM / XC
2. Rail
3. Open latch (bottom)
4. Top edge DIN rail
5. Press device
6. Latching nose
7. Close latch (top)



Installation

Wall Installation

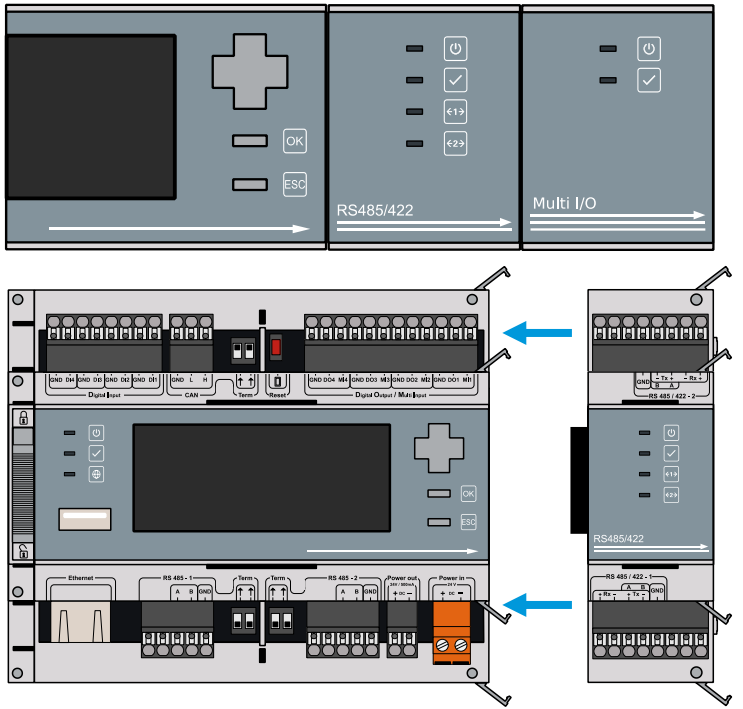
1. Attach two screws to the wall at a distance of 80 mm.
2. Attach the device to the rear inlets. Slide the device down and check for a correct fit.
3. For disassembly, slide the device upwards and remove it to the front.



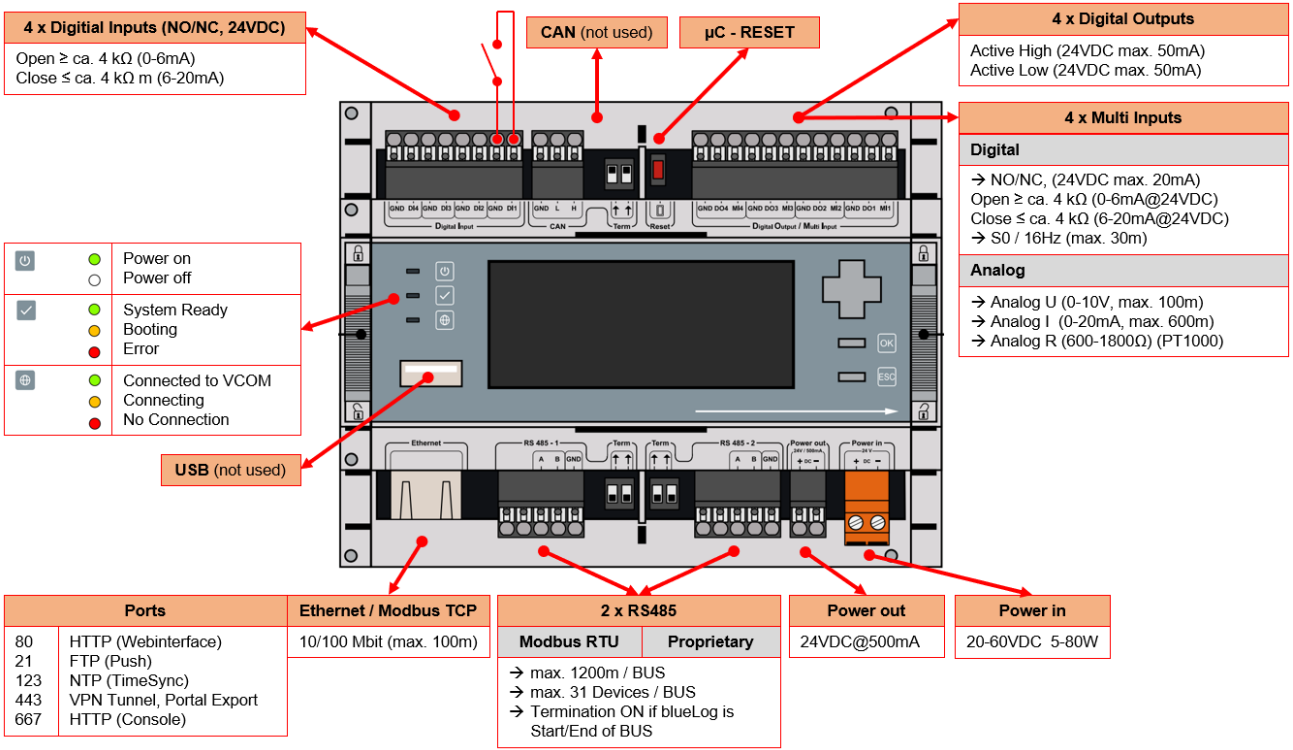
Installation

Expansion Modules (MX-Module)

1. De-energize blue'Log
2. Open latches
3. Note arrows in ascending order and connect devices
4. Re-close latches
5. Restore power supply



Overview of connections



Power supply

- The current consumption of the blue'Log must be limited by a corresponding energy-limited circuit. It is also possible to use a DC power source with limited power.

- The power supply of the blue'Log must comply with the following requirements:
-
  - Voltage: 24 V DC
  - Current: 3,3 A (Full expansion), normal 1,5A

Connect to the network using a patch cable
Establish the power supply to the blue'Log
Wait for the boot process to complete

blue’Log® XM / XC

Setup of the blue'Log via the web interface using a browser
-> system

Configuration

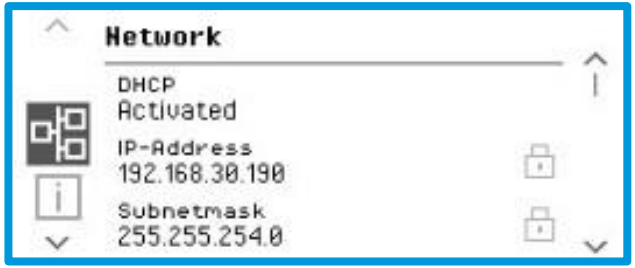
Providing access to the web interface

- **With DHCP server:**
  IP address assigned by DHCP server

- **Without DHCP server**
  IP address, network mask, gateway and DHCP address must be specified

- Current IP address is shown in the display
-
- Alternatively, you can enter the blue'Log hostname:

  DNS, Netbios: http://blue-xnnnnnnnn
  No DNS, Netbios: http://blue-xnnnnnnnn.local
  n = last 8 digits of the hardware serial number

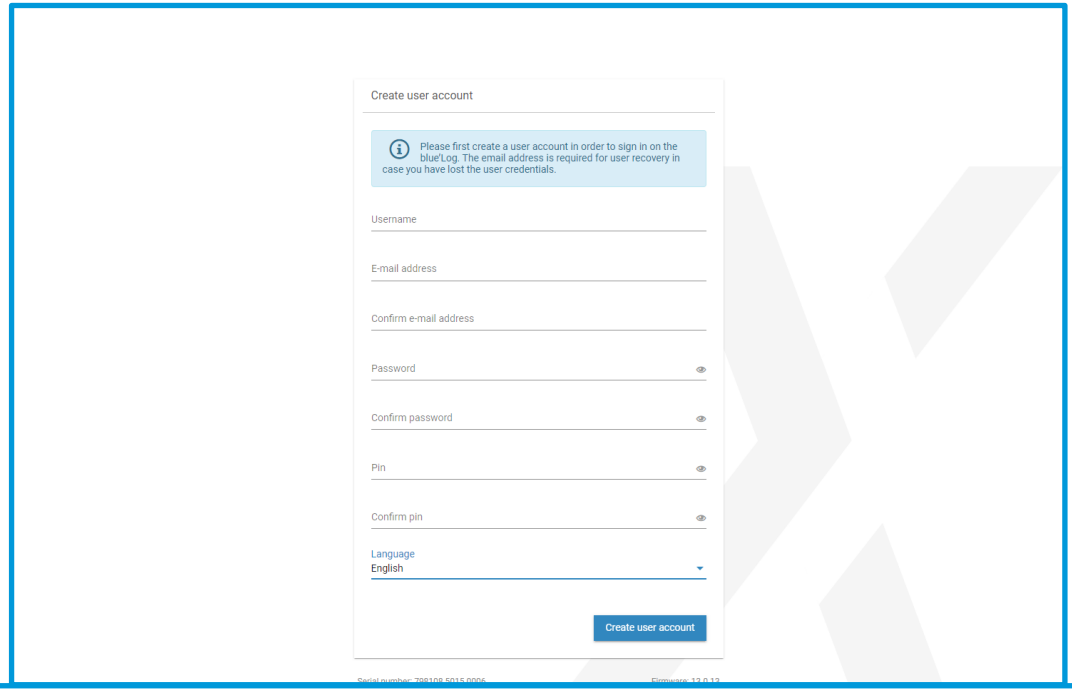


Configuration

Setup

- During the initial setup, a user must be created
-
- The e-mail address is important for the password reset (only with internet connection!)
- Password with at least 10 characters
-

Call up the web interface of your blue'Log
Run the Users - Initial Setup.



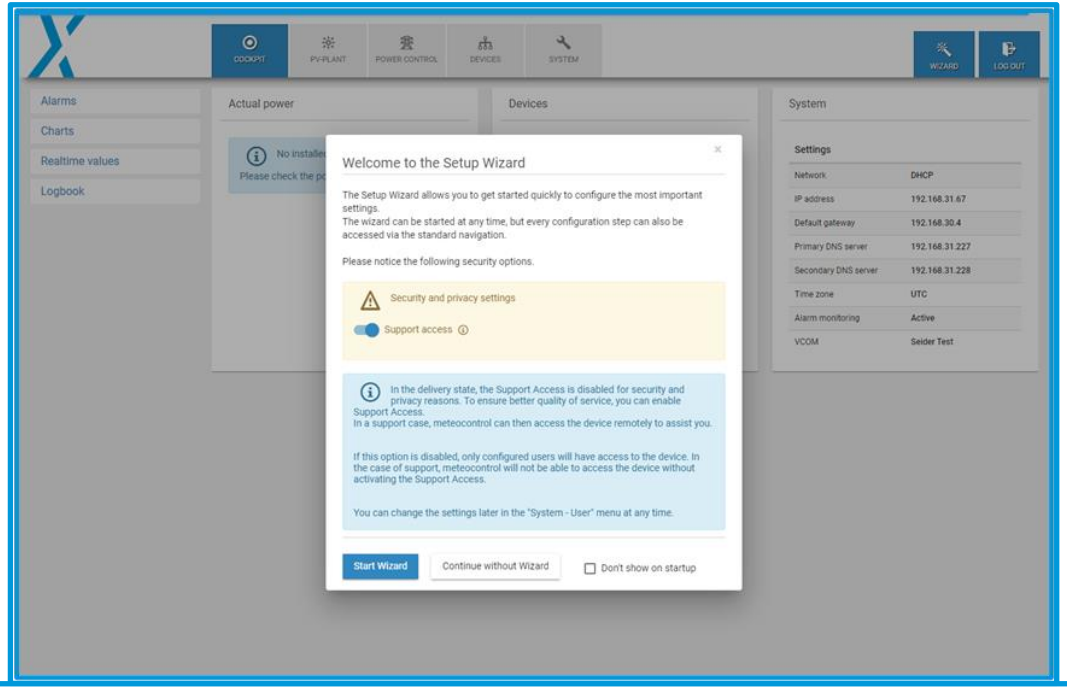
Configuration

Setup Wizard

- **Support Access**
  Should be activated during system setup.
  Must be activated for remote access by meteocontrol.

- Setup wizard for the most important settings

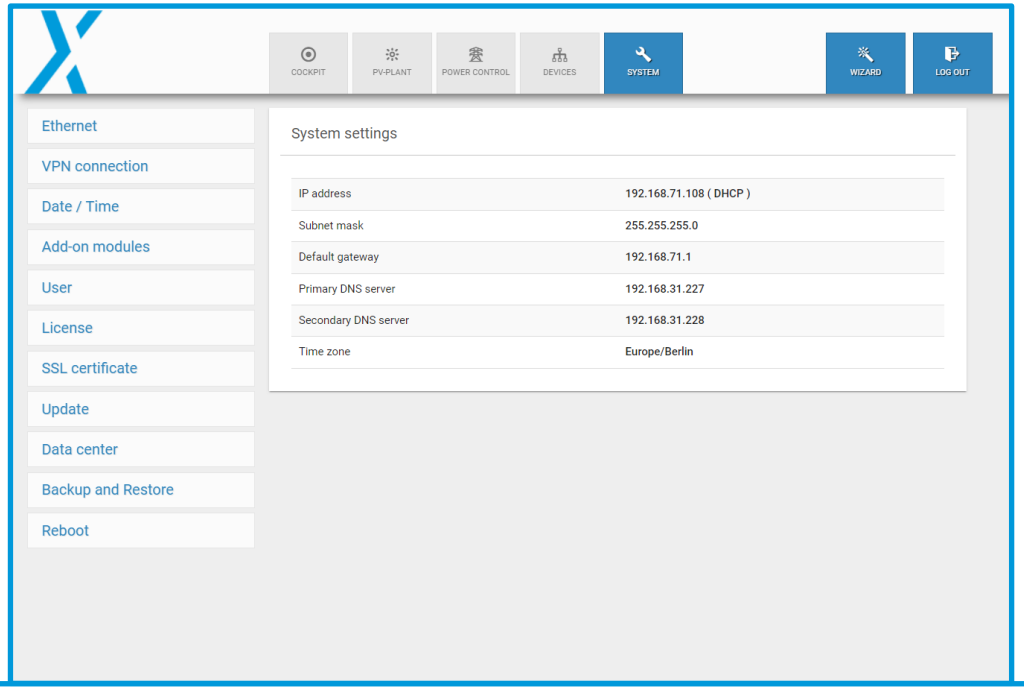
- System
- Device Setup
- PV system
- Summary
-



Configuration

System

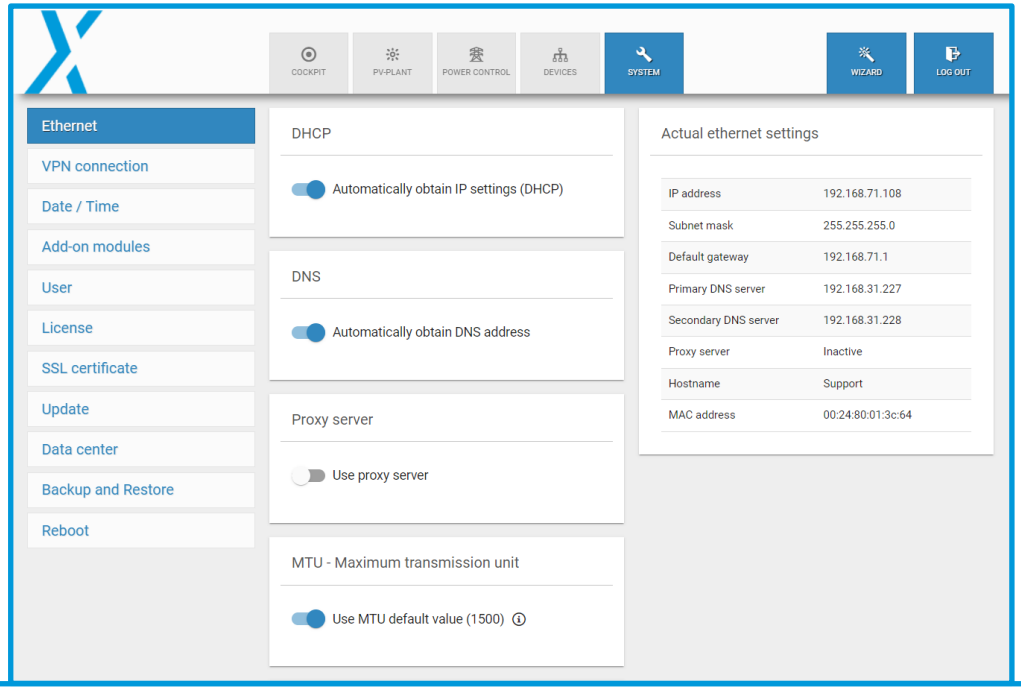
- Listing the current network setting
-



System

Ethernet

- DHCP setting is active Address assignment is performed via the network router
- Manual setting of address configuration when DHCP is turned off
- Proxy server can be configured if present on the network
- Via hostname, the blue'Log can be found and addressed via the network, important for Power Control – Master / Slave operation
-



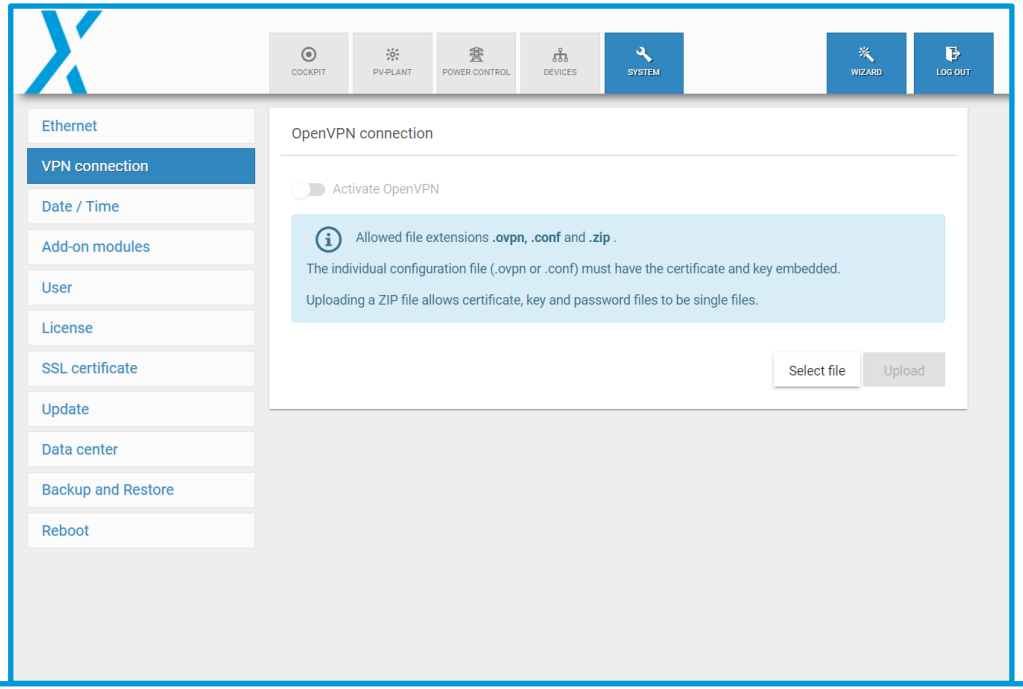
System

VPN connection

- z.B. for direct marketer interface
- Saving an additional VPN router

Get OpenVPN up and running:

- Upload ZIP file
- Enable OpenVPN
- Connection established when "green checkmark" appears on connection status



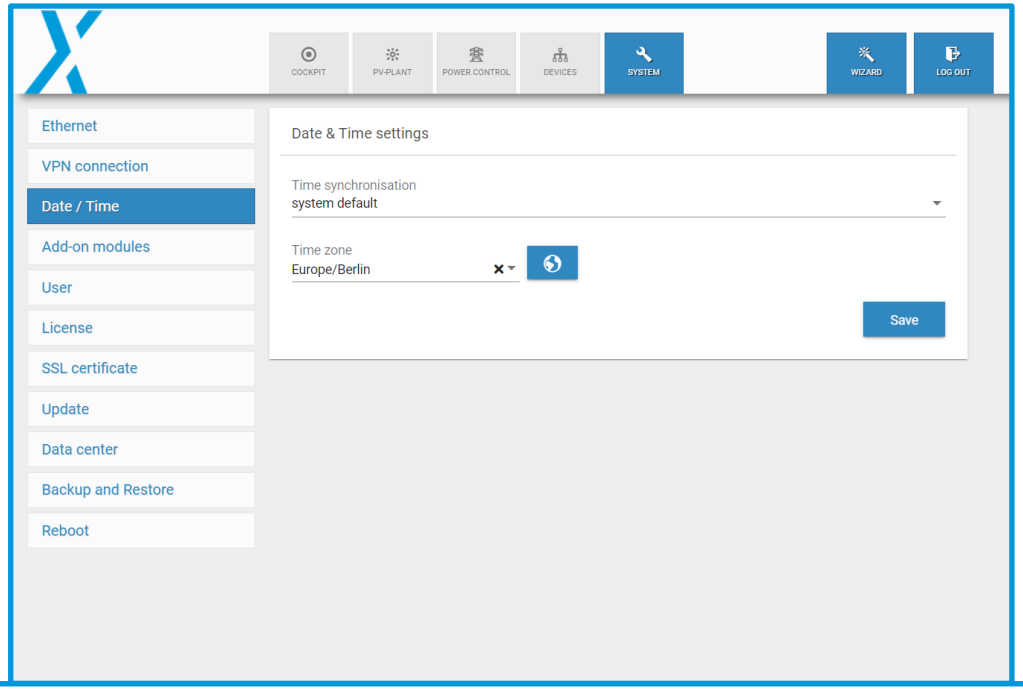
System

Date / Time

- Setting local time
- Time synchronization is controlled via meteocontrol's own time server, for example: "0.meteocontrol.pool.ntp.org"

- The time zone can also be selected via a world map

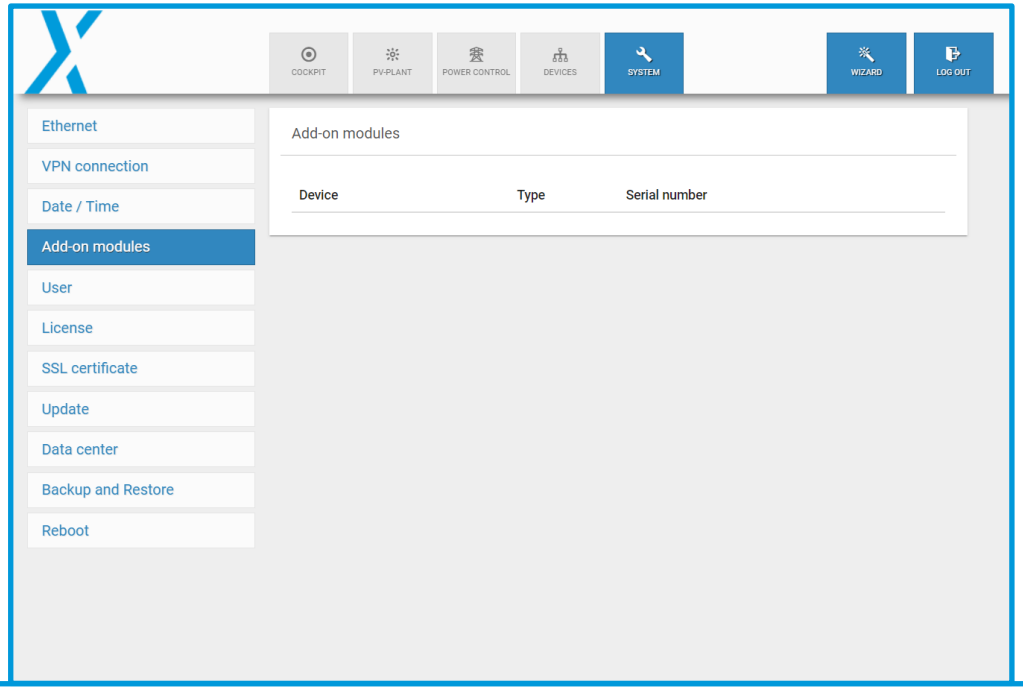
Select the current time zone on your blue'Log



System

Expansion Modules

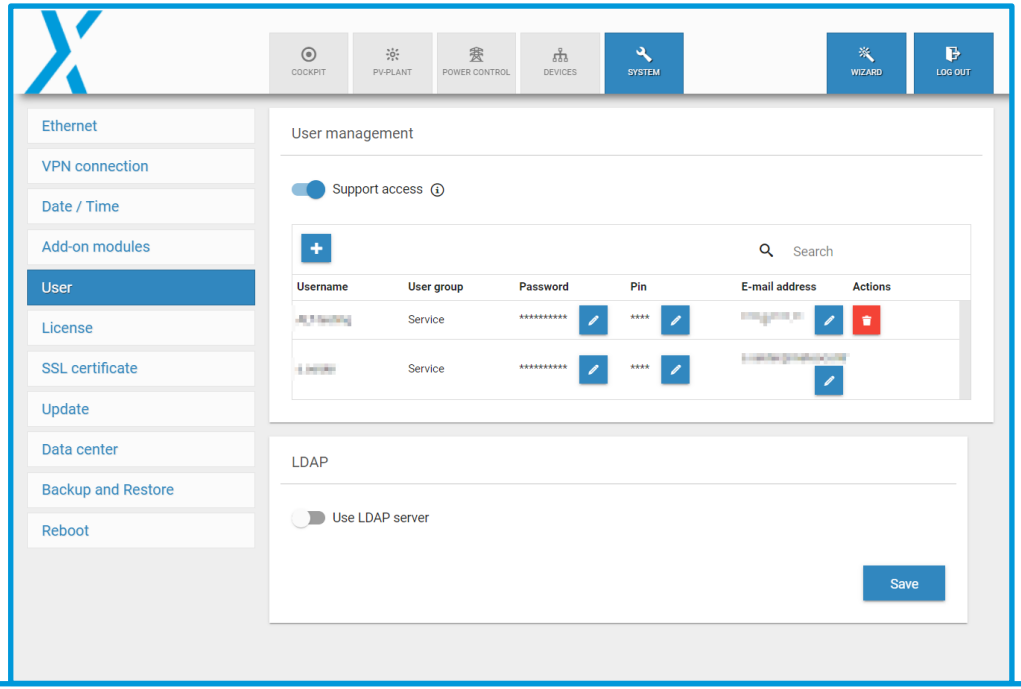
- The attached MX expansion modules are listed
- The expansion components are supplied with power via an internal bus system and the data is exchanged
  - MX-RS485
    2 additional RS485 interfaces
  - MX-IO Module
    4 multi inputs (analog / digital)
    4 digital outputs



System

User

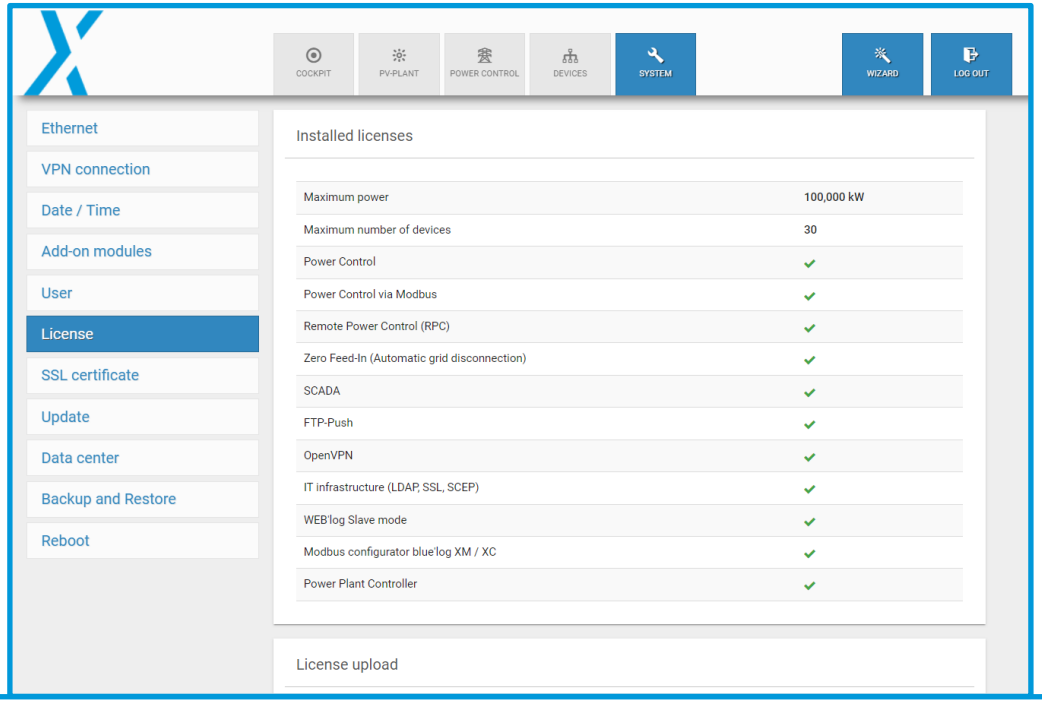
- In the user administration, new users can be created and existing ones can be edited
- The e-mail address is used for password recovery
- User groups are distinguished according to their rights:
  - User
    Only read rights, e.g. for end customers
  - Service
    Configuration of devices and change of settings are possible
  -



System

Licenses

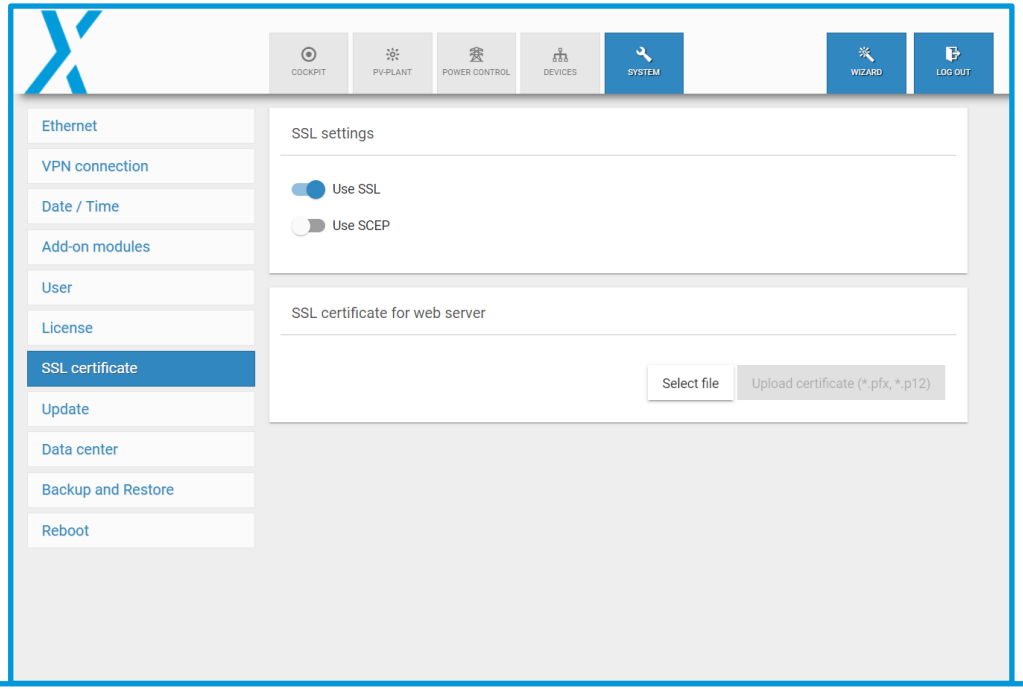
- Maximum performance: Depending on the license
- Max Number of Devices
  - XC: 30 devices
  - XM: 100 devices
- Under Licenses you can see which functions are "unlocked" on the blue'Log:
- e.g. Remote Power Control (RPC) for direct marketing
- e.g. OpenVPN for direct marketing (VPN connection to the system provider)
-



System

SSL Certificate

- With the "IT infrastructure" license, a "secure login" can be achieved via SSL certificate for logging on to blue'Log
- This procedure is used, for example, in "Online Banking"

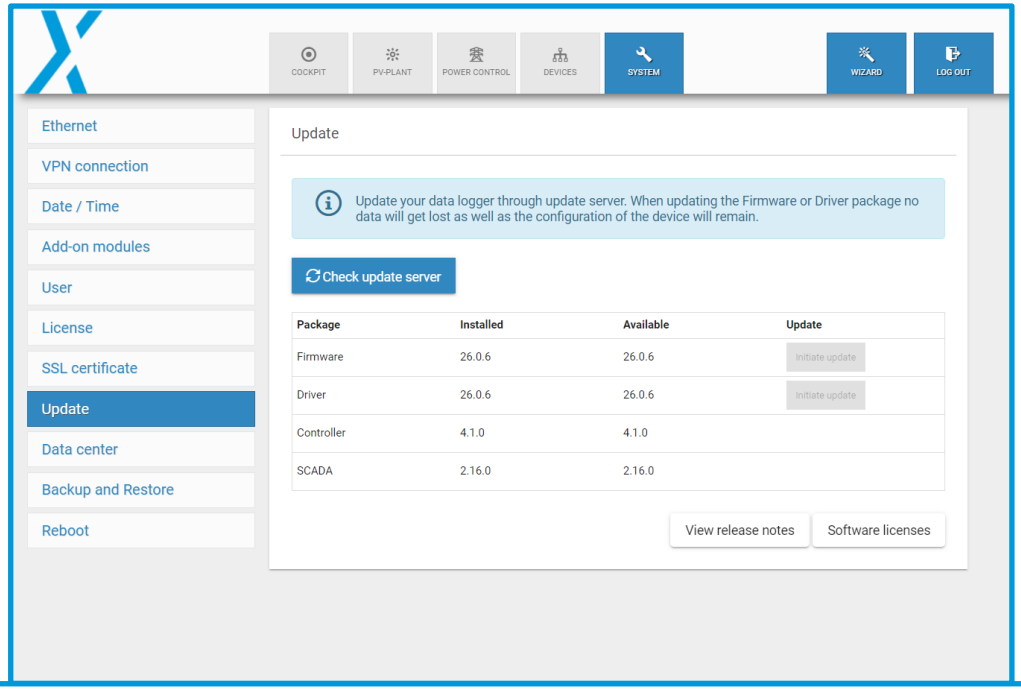


System

Update

- Updates are divided into the following modules:
  - **Firmware**
    blue'Log system updates
  - **Driver**
    Database for compatible devices, e.g. inverters
  - **Controller**
    Module for Power Control (if the park controller is certified, the module must not be updated)
  - **Scada**
    Interface and function for local data monitoring
  - **Update Controller**

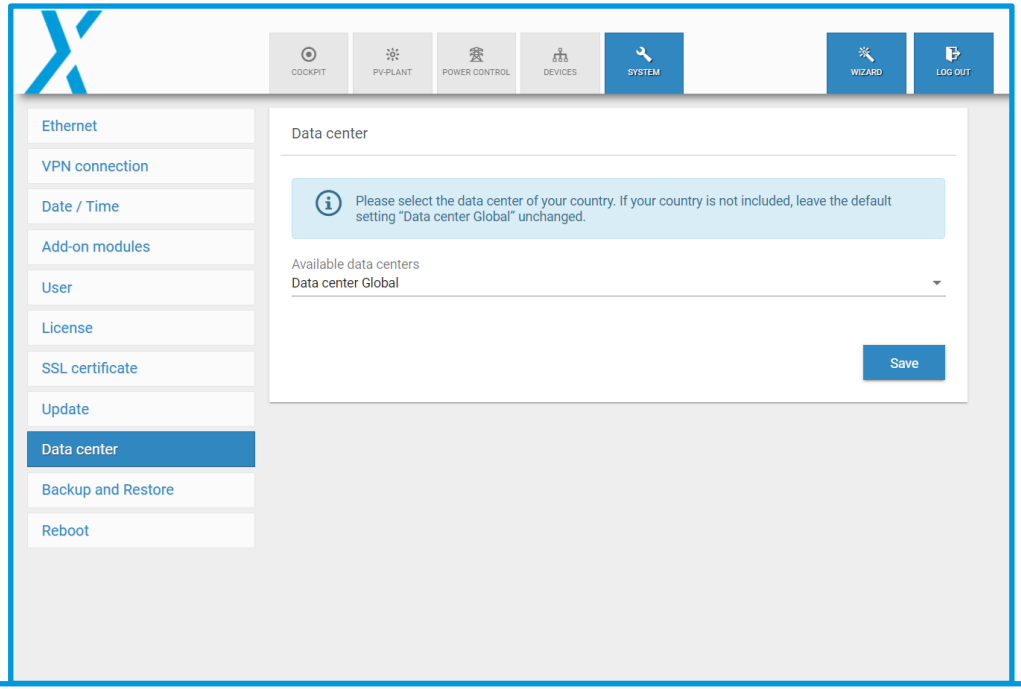
A new certification of the system may be necessary if the first digit changes (Major Update)



System

Data Center

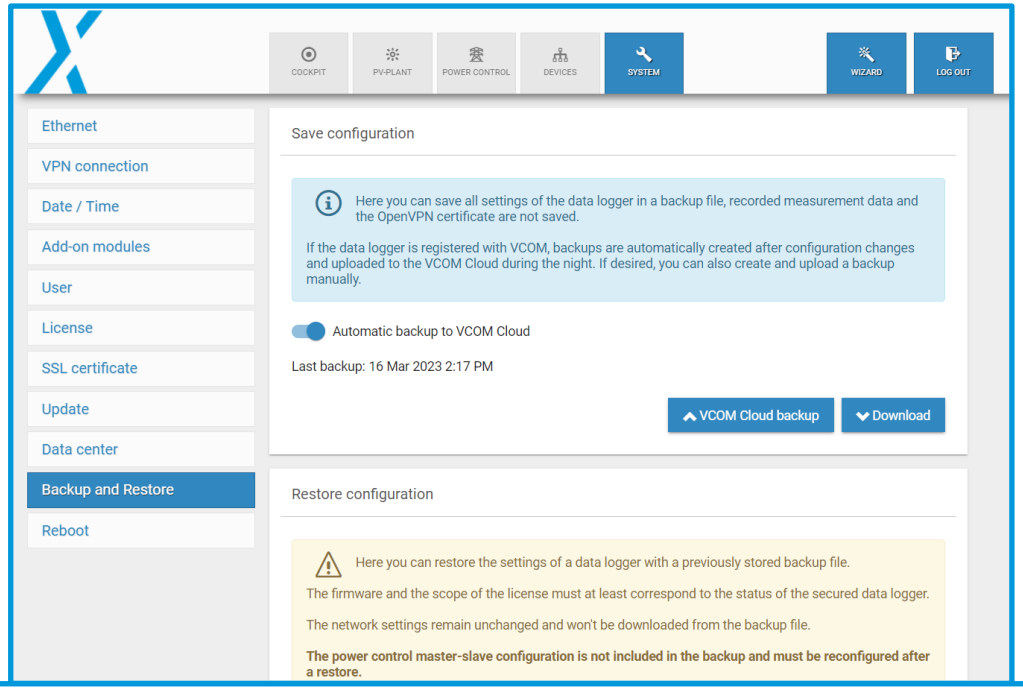
- Selection of the meteocontrol Data-Center
  - **Data Center Global** (default)
    Setting for all other regions
  - **Data Center China**
    Adjustment necessary for the China region



System

Backup and restore

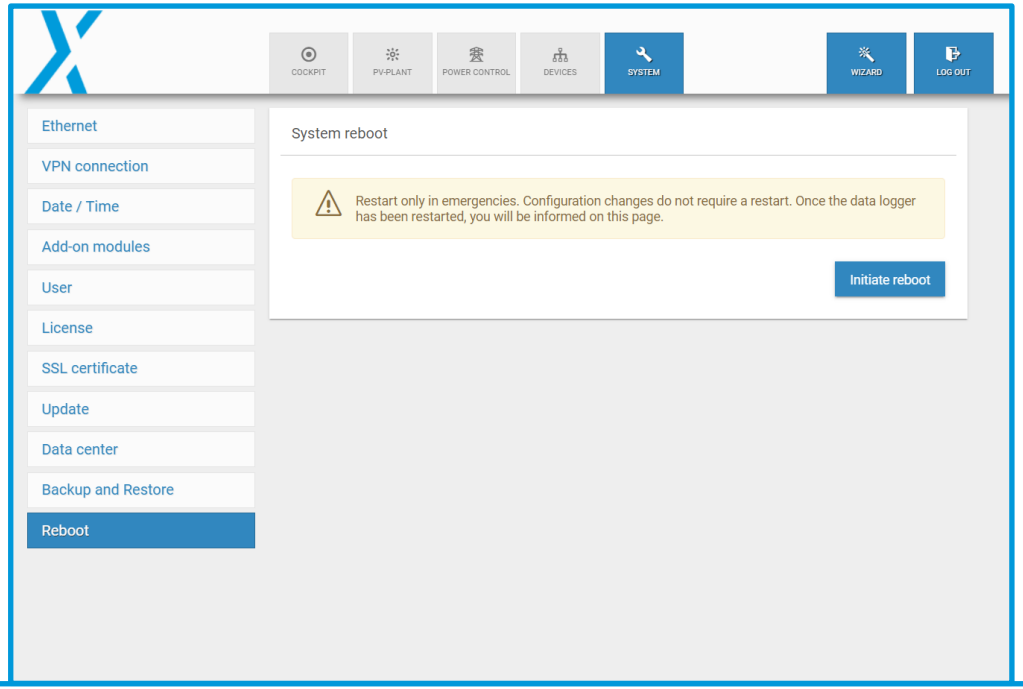
- The settings on the blue'Log can be saved and restored to a file on the PC.
- It is recommended to perform this function after successful setup.
  So in case of a hardware defect a backup is available
- The blue'Log can also be reset to factory settings
- Automatic saving of settings in the VCOM Cloud once a day when changes are made if the blue'Log is registered in VCOM
-



System

Reboot

- A manual restart of the blue'Log can be activated manually
- The blue'Log does not require a restart during operation
- After the device configuration, no restart is performed on the blue'Log
-



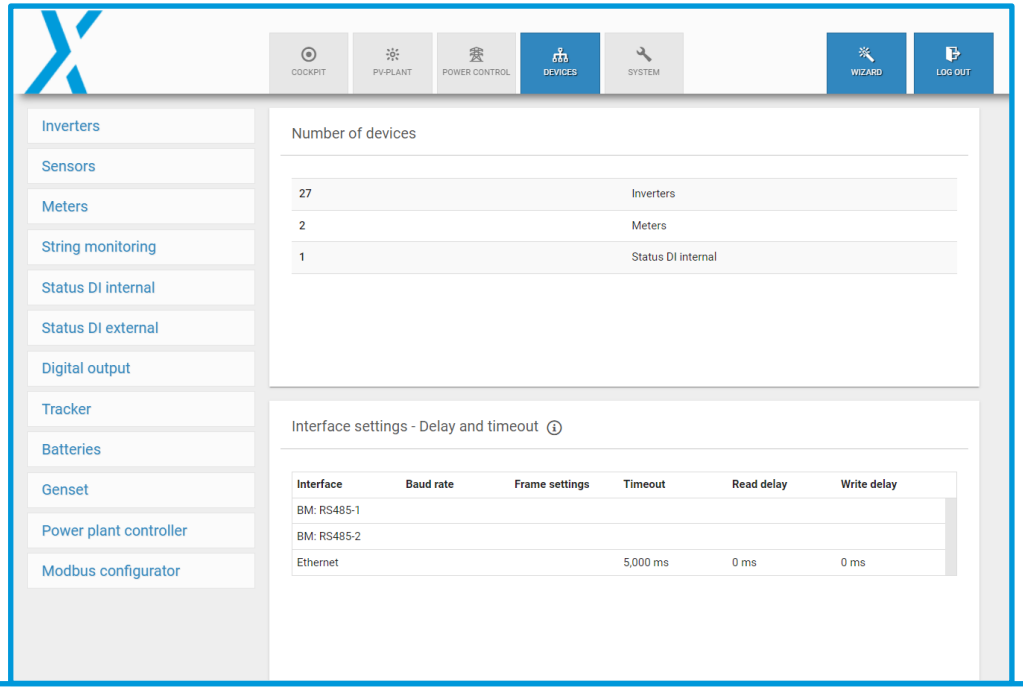
blue’Log® XM / XC

Setup of the blue'Log via the web interface using a browser
-> devices

Configuration

Devices

- List of which devices have been connected to the blue'Log and the expansion modules
-

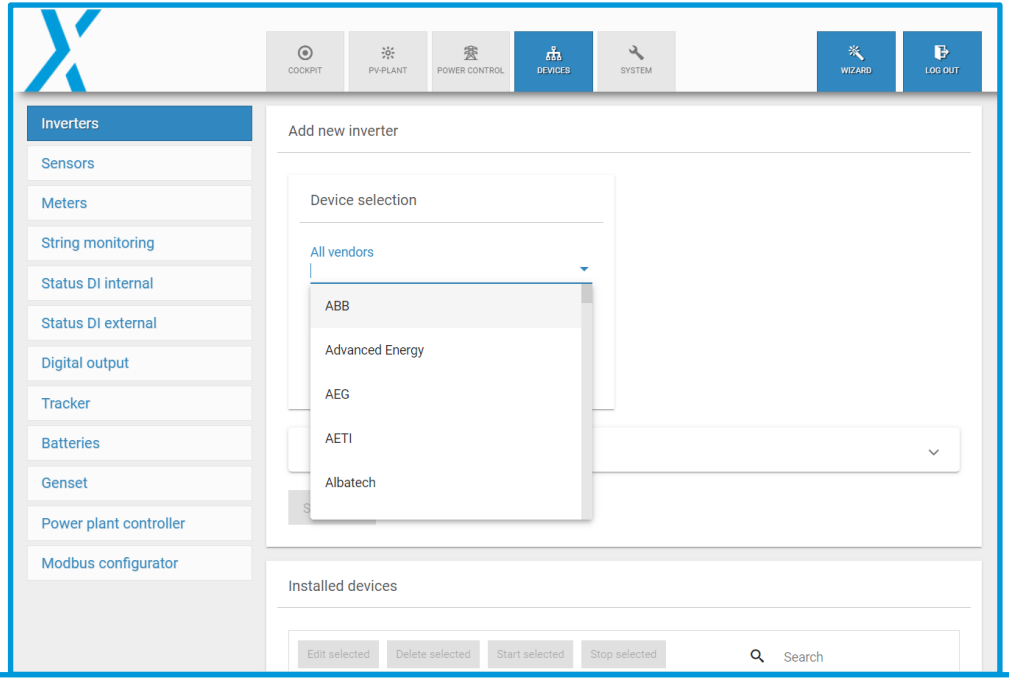


Devices

Inverter

- Under "Device selection" first select the inverter manufacturer
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then specify the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set

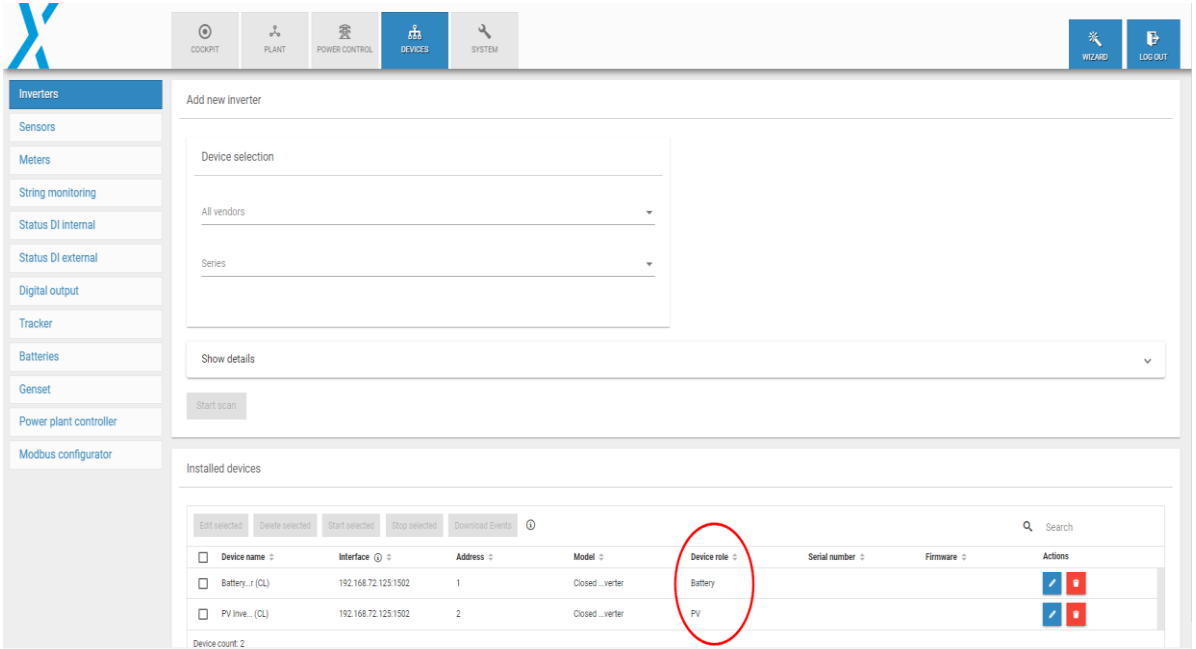
Perform a scan after connecting the inverters



Devices

Inverter with HEMS

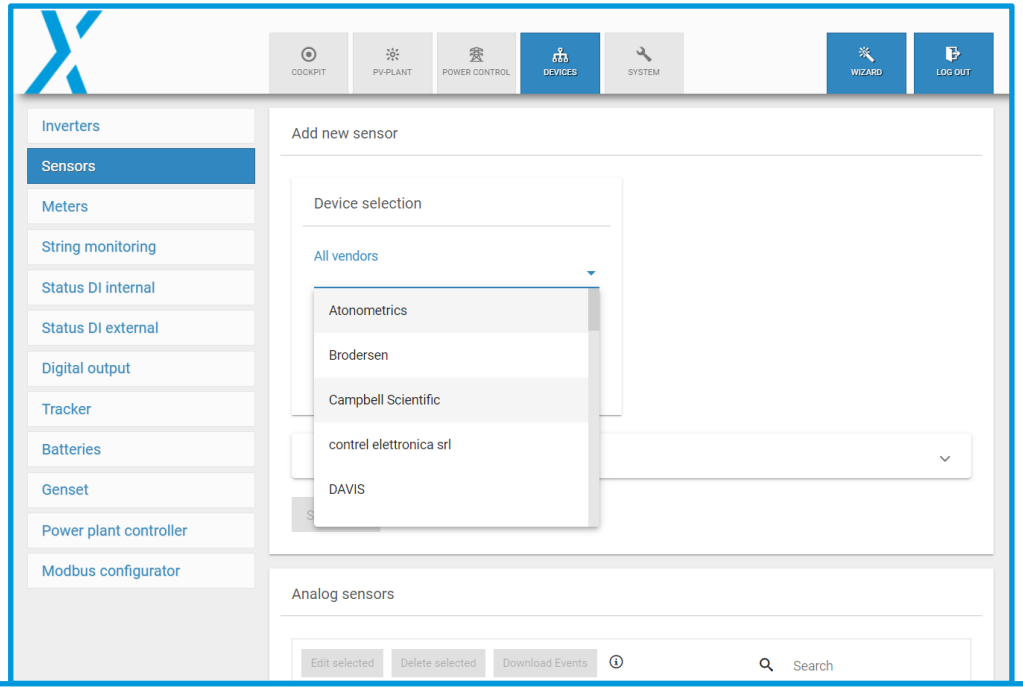
- Under DEVICES/ INVERTERS/ Installed devices - you will now also find battery inverters.
- Characteristics of the device category "Battery"?
- Capacity (kWh) → is required for state of charge calculations
- Connected to →, the battery allocates to a corresponding inverter



Devices

Sensors

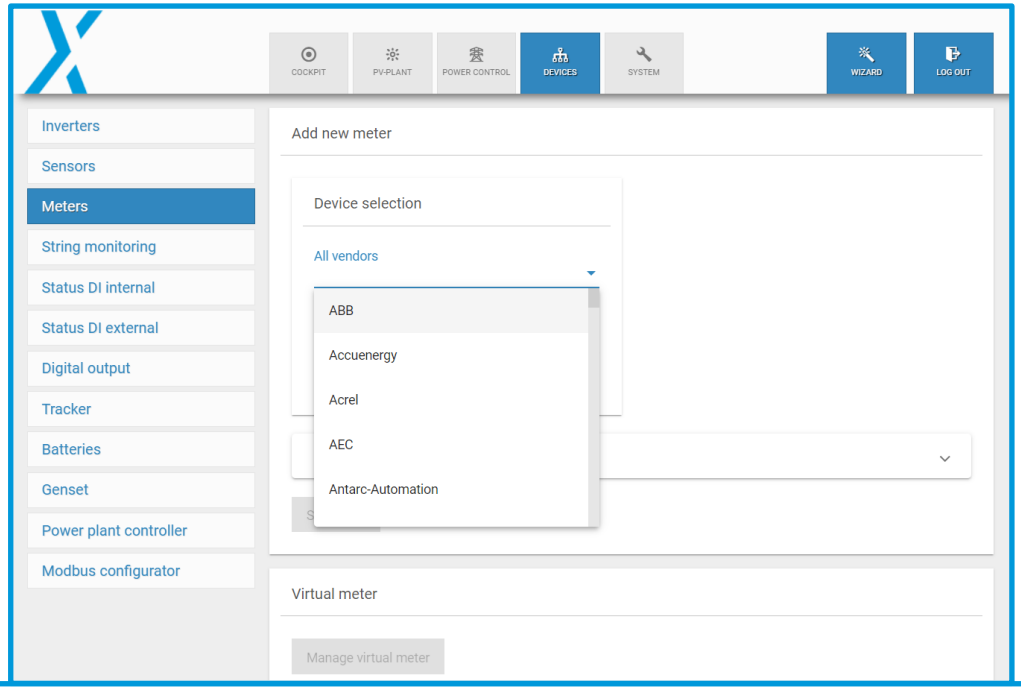
- Under "Device selection" first select the sensor manufacturer
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then specify the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set



Devices

Numerator

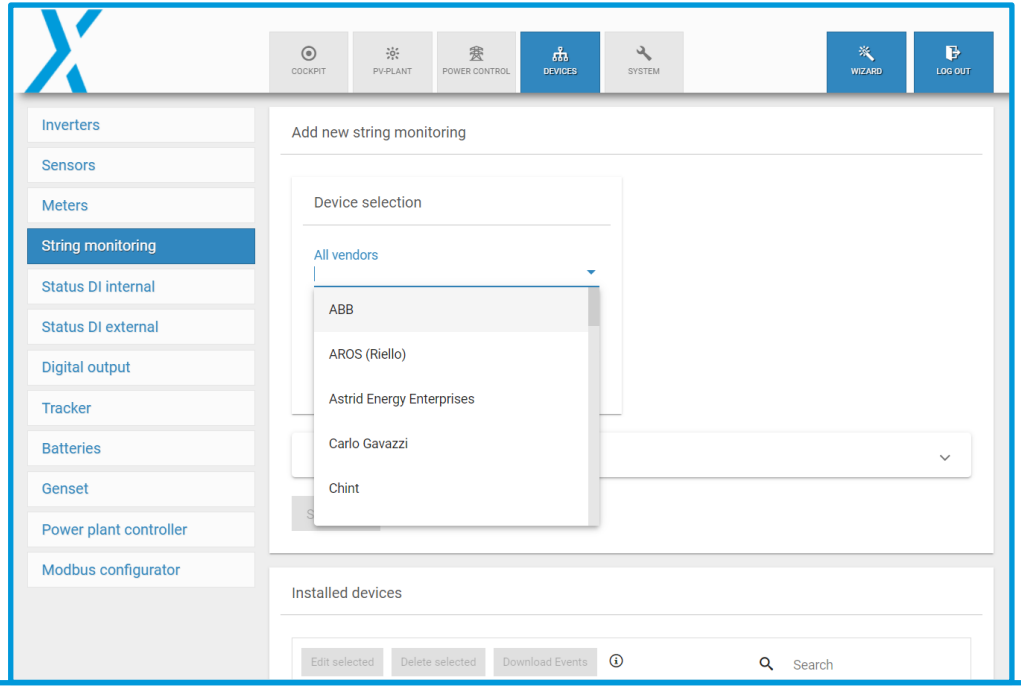
- Under "Device selection" first select the counter or network analyzer
- Then set the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Counting arrow direction" the sign for the energy direction is determined
- "Device role" specifies the counter for the Power Control setting (select power supply and reference at the grid connection point)
-



Devices

Line monitoring

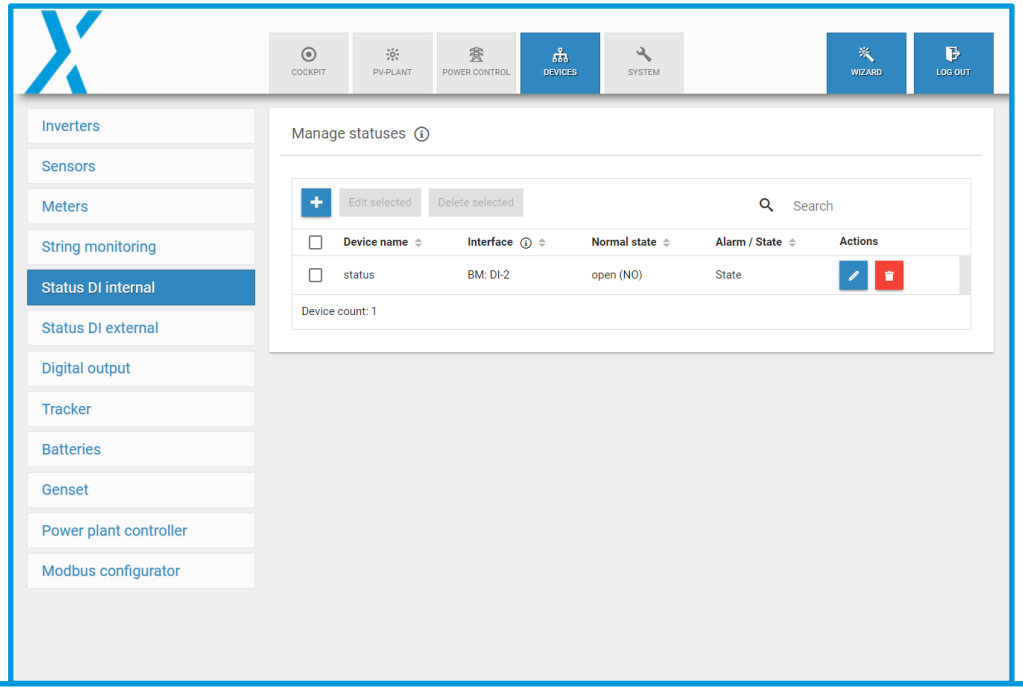
- Under "Device selection" first select the GAK manufacturer
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then set the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set



Devices

Status DI intern

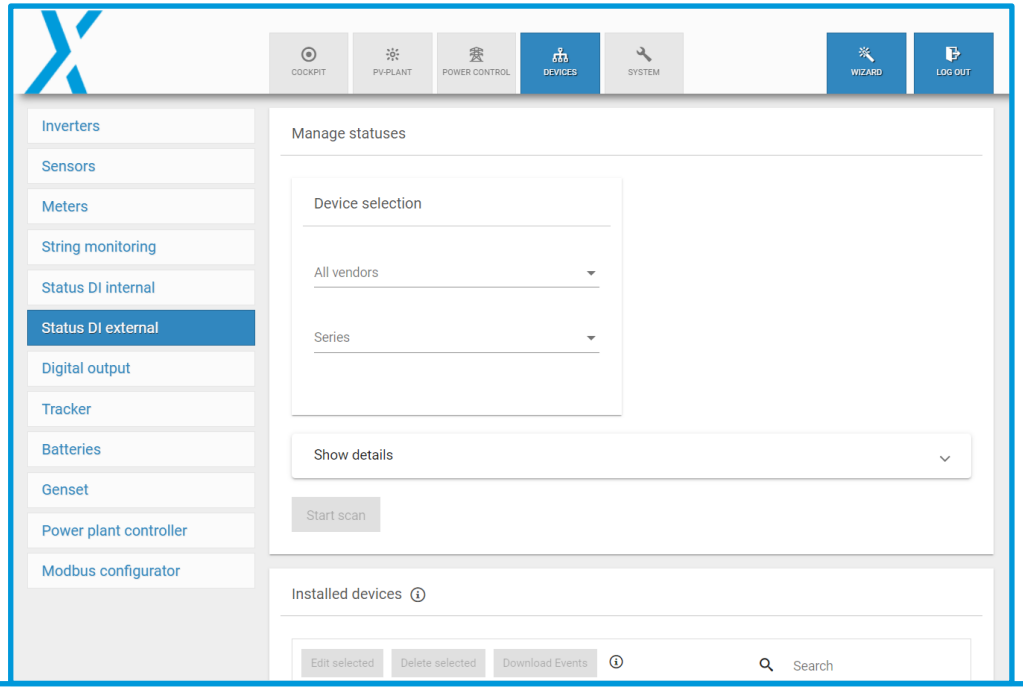
- Both status and alarm inputs can be configured
- For this purpose, multi-input inputs or digital inputs are used via the blue'Log or via the MX-IO modules
- Examples:
  - Medium-voltage switchgear and controlgear
  - UPS fault message
  - Door contact



Devices

Status DI extern

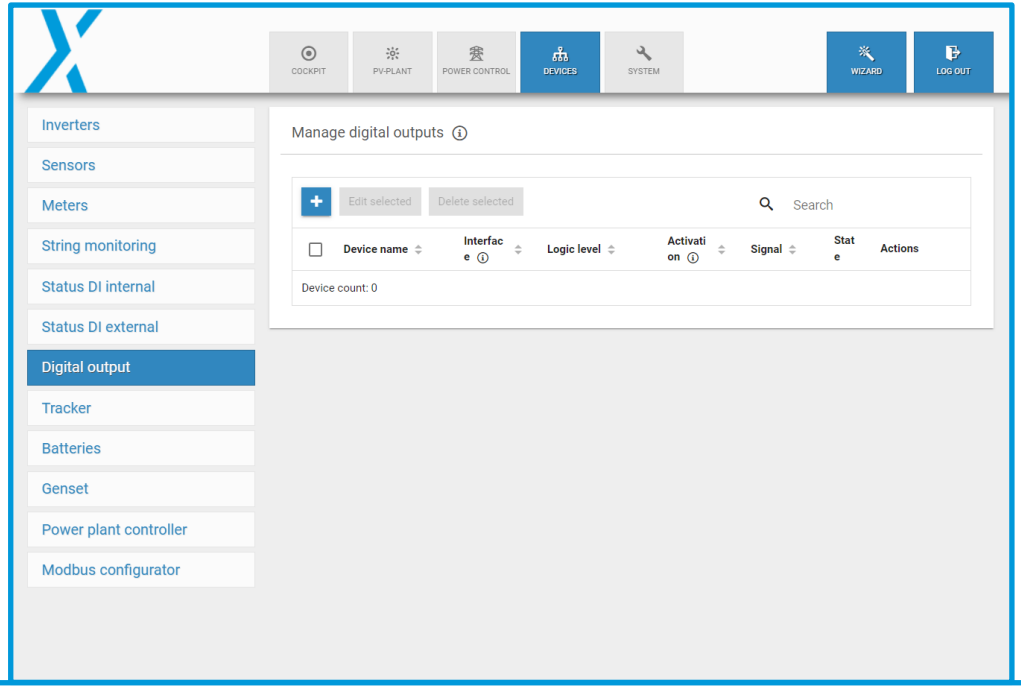
- Status inputs can be configured
- The inputs can be used, for example, by a "WAGO I/O System"
- This is necessary in order to be able to process alarms later via the digital input signals
- Examples:
  - Medium-voltage switchgear and controlgear
  - UPS
  - Door contact



Devices

Digital outputs

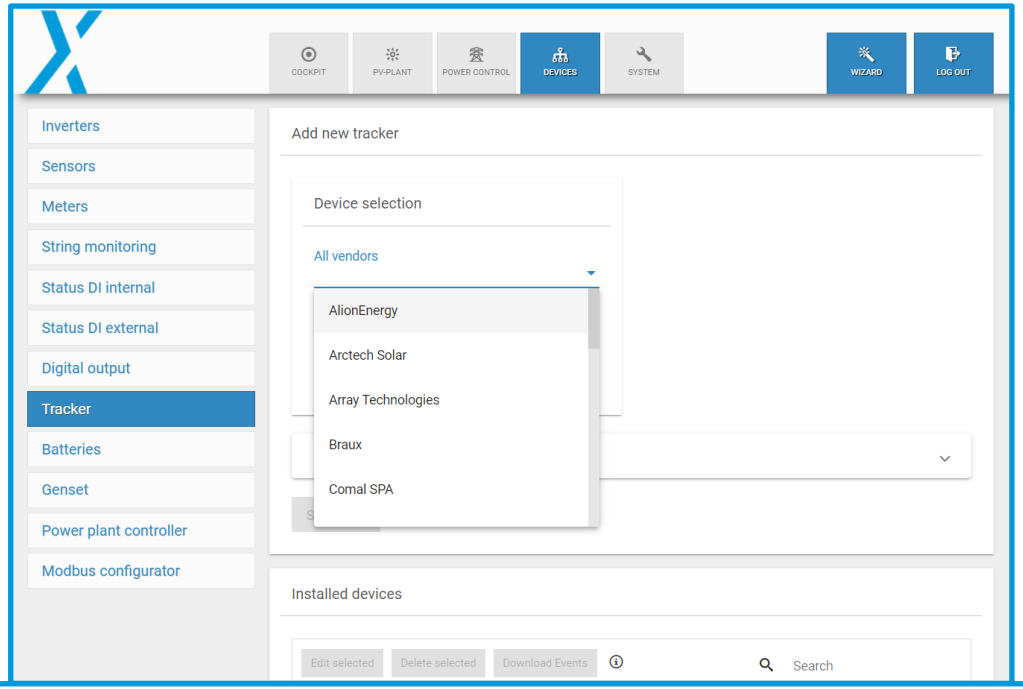
- Various functions can be used for the digital output
- **Manual** - A switch icon appears on the right side of the configuration so that the output can be switched manually
- **SCADA Interface** - The output can be switched via SCADA address (SCADA license required)
- **Digital input** - Depending on a digital input, a digital output is switched
- **Pulse** – A digital output can be switched with pulses from 0.5 to 5 seconds (selectable)



Devices

Tracker

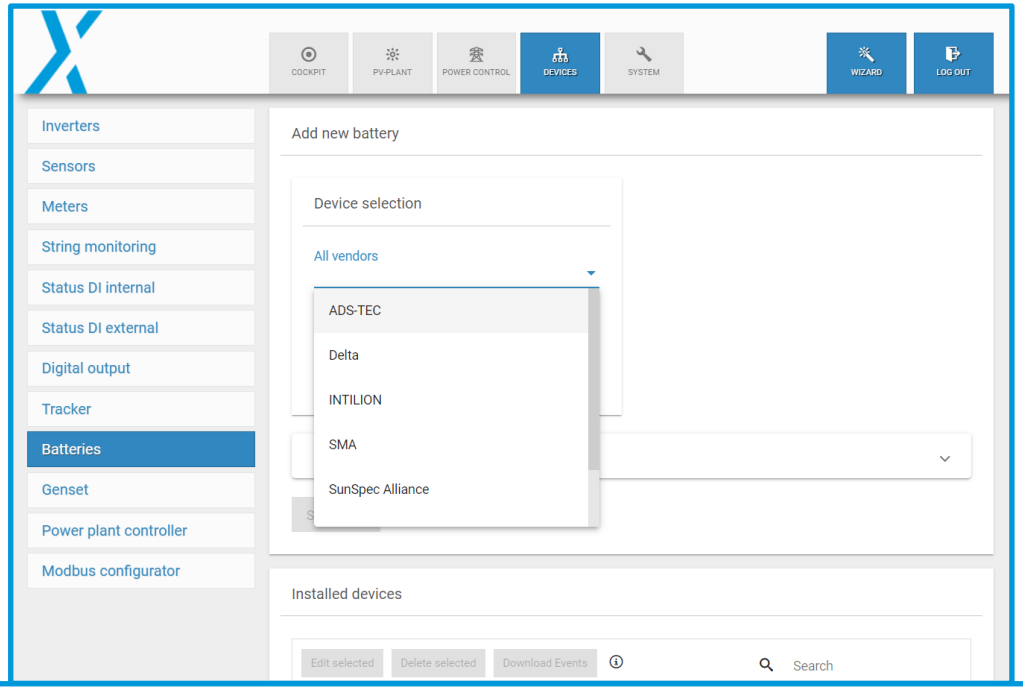
- Under "Device selection" first select the tracker manufacturer
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then set the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set



Devices

Batteries

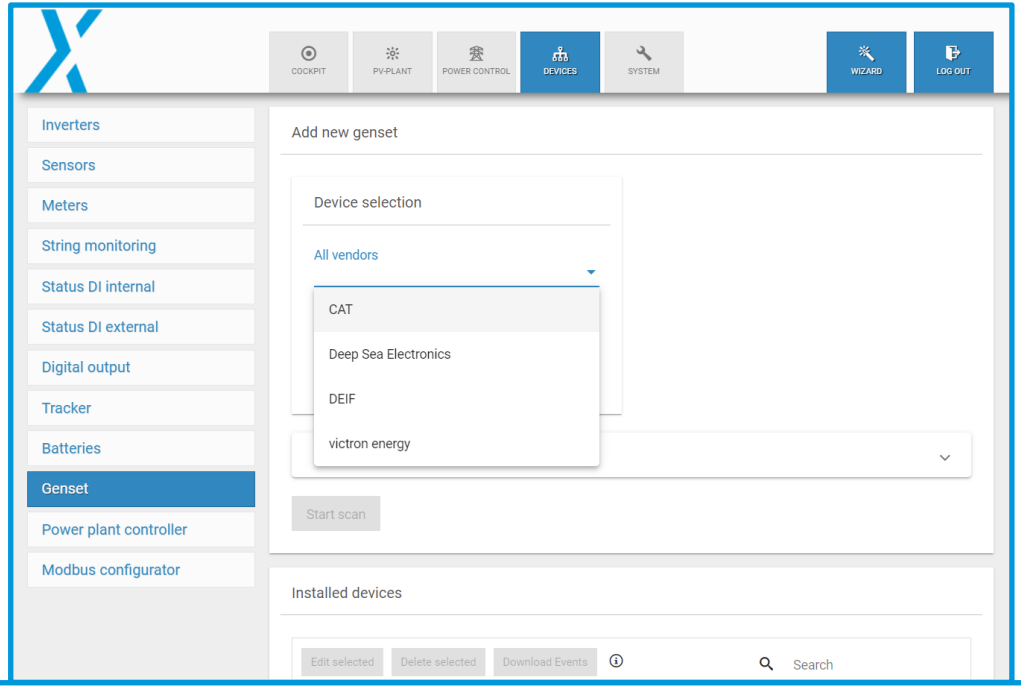
- Under "Device selection" first select the battery manufacturer
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then set the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set



Devices

Genset

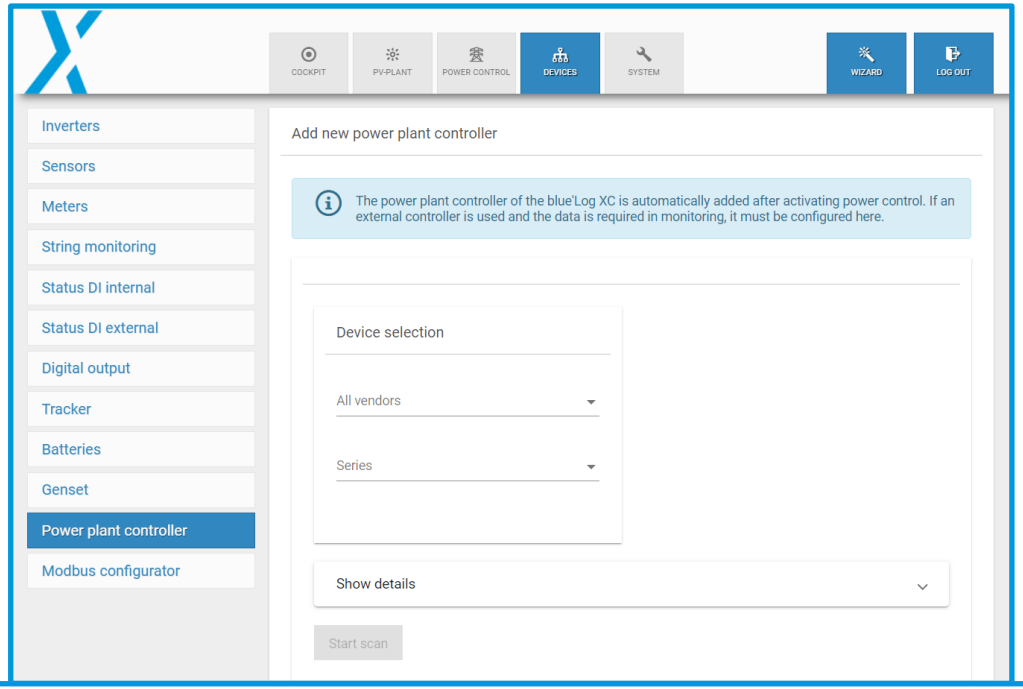
- Under "Device selection" first select the manufacturer of the supported diesel generator
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then set the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set



Devices

Power Plant Controller

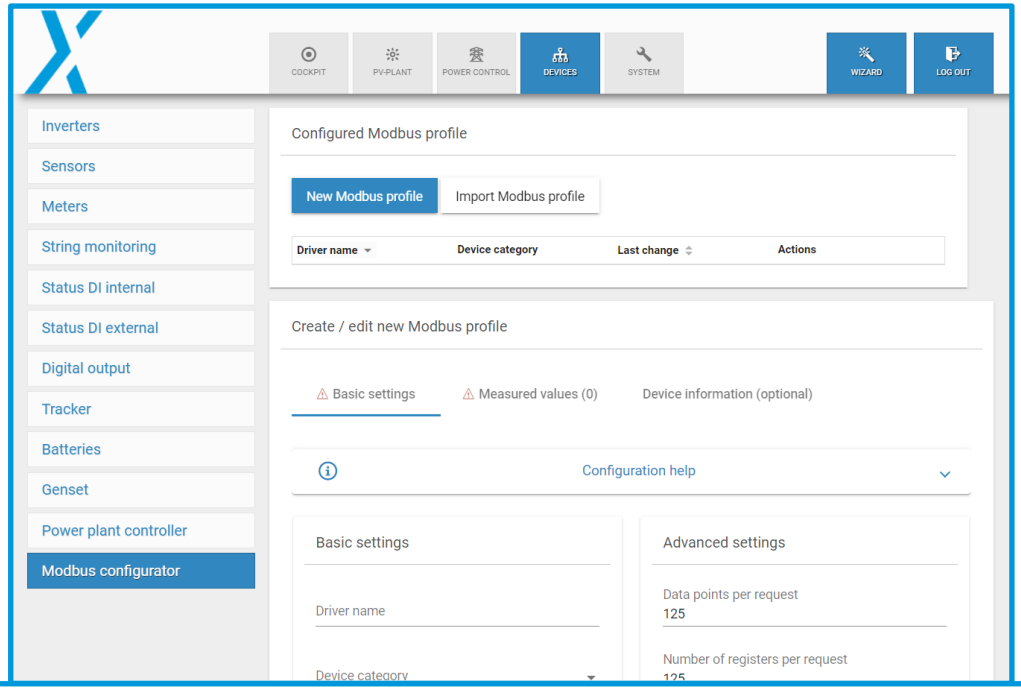
- Under "Device Selection" first select the manufacturer of the supported "External Power Plant Controller"
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then set the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set



Devices

Modbus Configurator

- With the license "Modbus Configurator" a new Modbus driver can be created under "New Modbus profile"
- For this purpose, the data for querying via Modbus is required by the manufacturer of the component.
- An "adjustment help" with explanations is available for configuring the driver
- the new driver can be saved with name and device category under the default setting
- Under "Import Modbus profile" an existing Modbus profile of another blue'Log can be imported

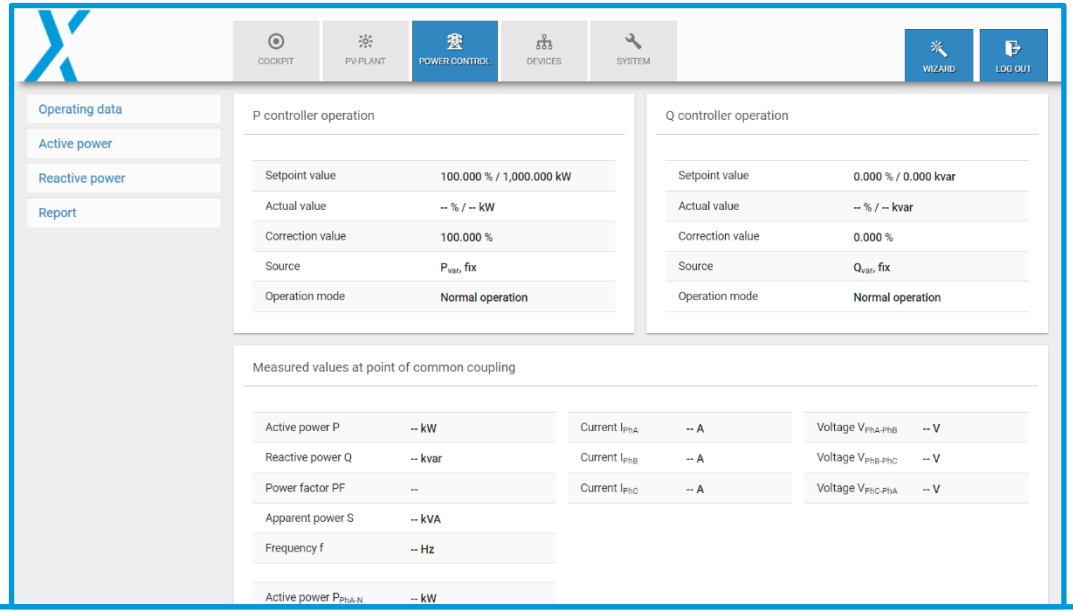


blue’Log® XM / XC

Setup of the blue'Log via the web interface using a browser
-> Power Control

Power Control

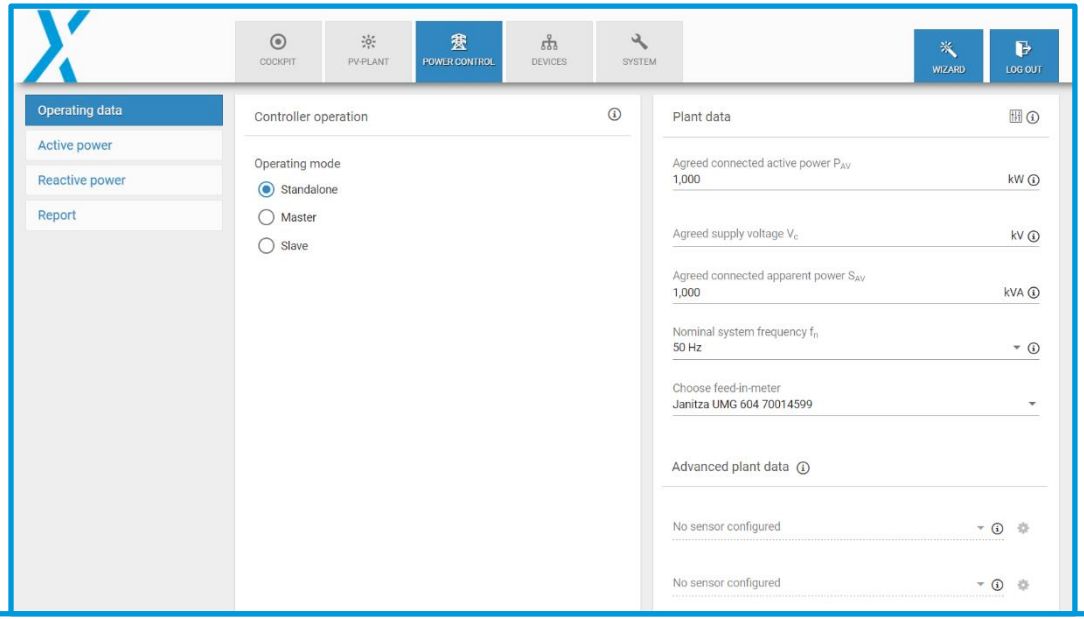
- Display of measured values, e.g. from the network analyzer
  (setpoints / actual values / control values)
  - Active power
  - Reactive power
  - Measured values at the grid connection point



Power Control

Operating data

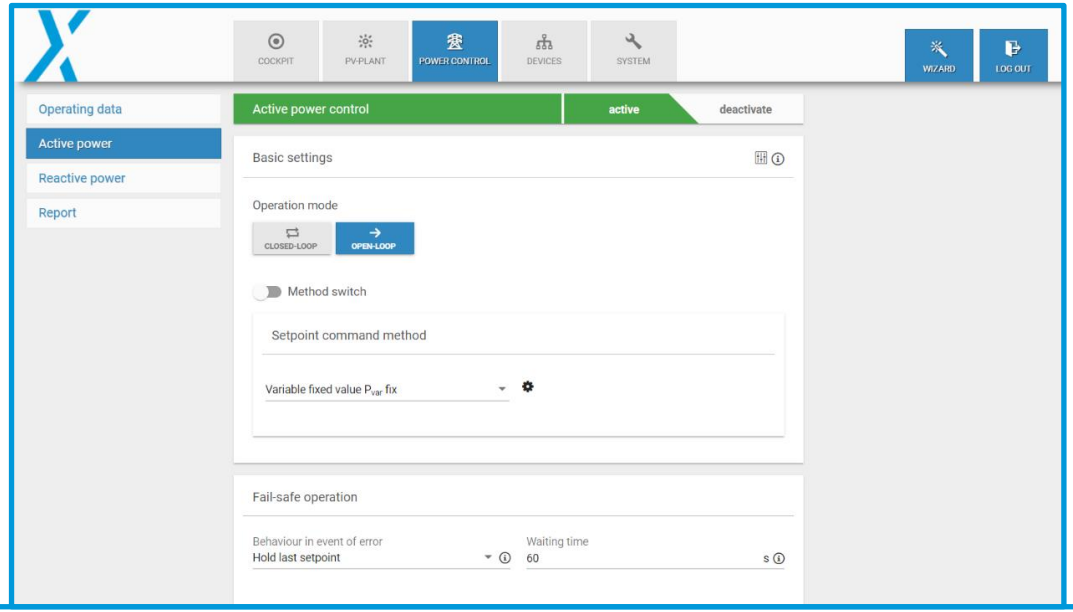
- Setting of plant data and selection of NAG
- Controller operation:
  - Standalone
    If only one XC blue'Log is used
  - Master
    XC blue'Log controls the slave blue'Logs
  - Slave
    XM blue'Log receives signals from the XC master blue'Log



Power Control

Active power

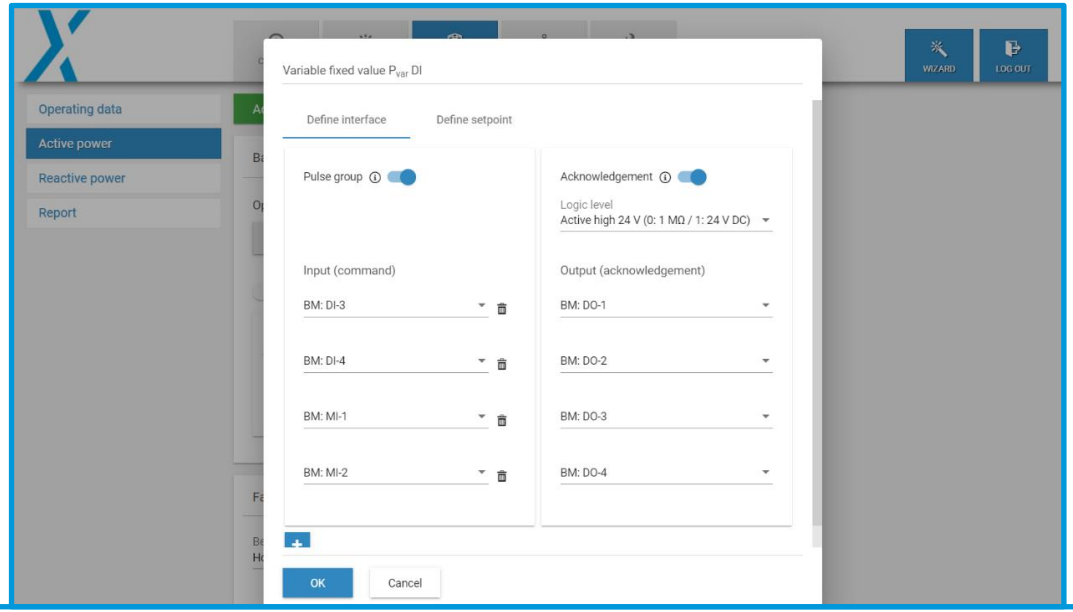
- Remote Power Control (RPC)
- Click the button in the upper right corner to go to the advanced settings
- Under "Options" the direct marketing interface "RPC" is activated
- “**OPEN LOOP"** with pure active power reduction, systems with full feed-in
- **"CLOSED LOOP"** for self-consumption systems, necessary for "zero feed in" or partial feed-in
- Change of procedure according to the specifications of the energy supplier
- Setting of the process values according to the specifications of the energy supplier
-



Power Control

Active power

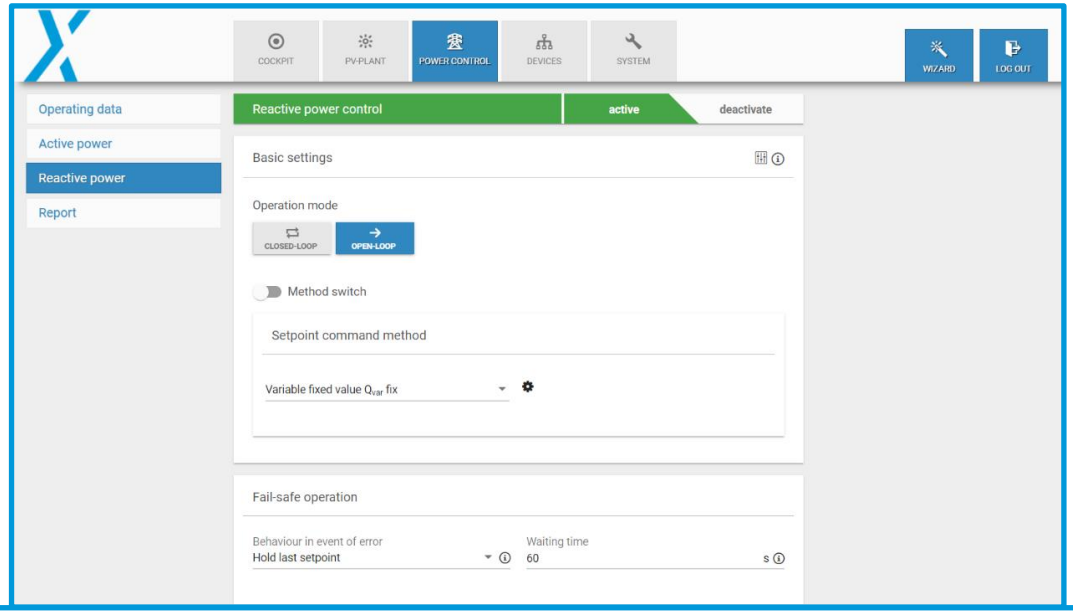
- Example active power:
- Connection ripple control receiver
- Process "Pvar DI"
- Digital inputs DI-1 to DI-4
- "Pulse group" when edge control is used instead of continuous signal by the energy supplier
- "Acknowledgement" output signal via digital outputs (if required DO-1 to DO-4)



Power Control

Reactive power

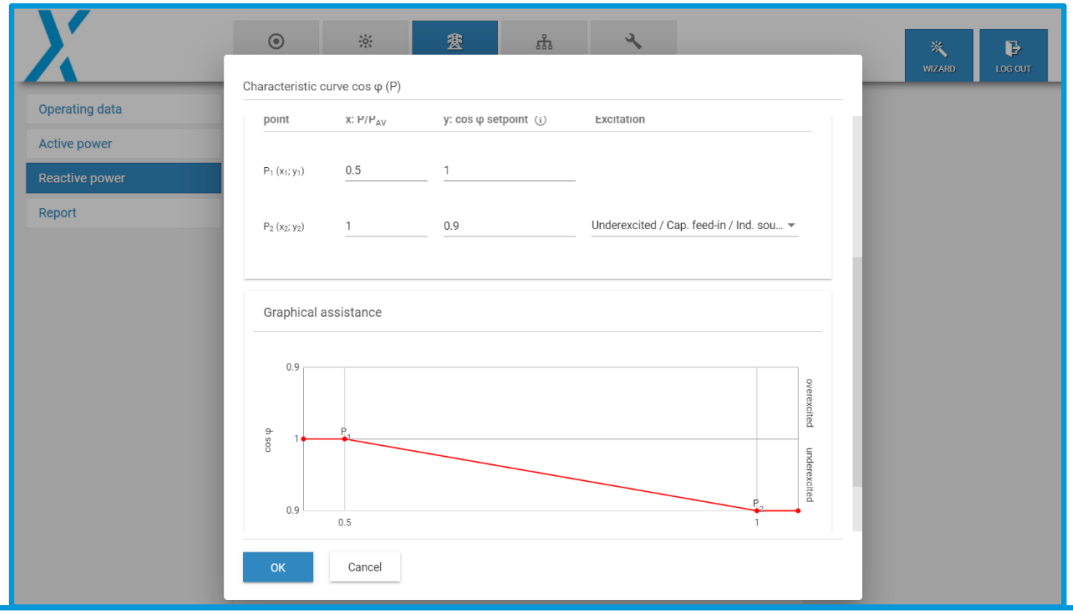
- **"CLOSED LOOP"** to be able to take disturbances into account, e.g. transformer, longer cable lengths until feed-in
- Setting of the process values according to the specifications of the energy supplier
- Further settings can be found at the "Zahnrad"
-



Power Control

Reactive power

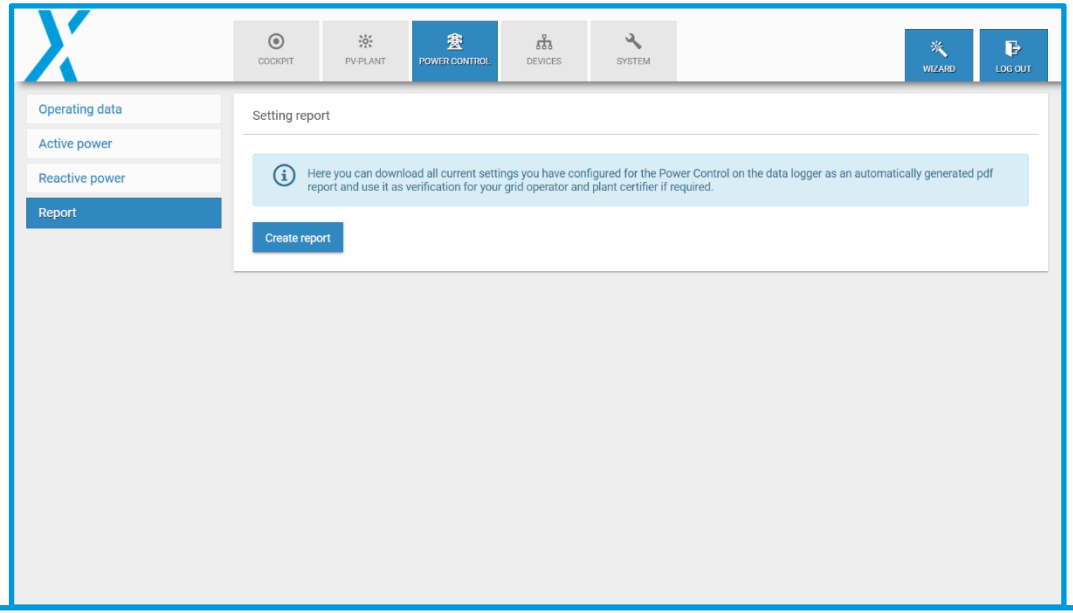
- Kennlinie:
- Einstellung der Kennlinie gemäß den Vorgaben des Energieversorgers
  - Support points (2 / 4)
  - Hysteresis (no / yes)
- The graphical wizard displays the set values (useful for verification)



Power Control

Report

- All "Power Control" settings are combined as a report with the "Create Report" button
- The report includes the operating data, the active power settings, as well as the reactive power settings
- Configured characteristic curves, such as Q (U) are also included as graphics in the report
- The report can be saved as a PDF and printed later or.dem energy supplier can be handed over by blue'Log as documentation via the configured parking controller



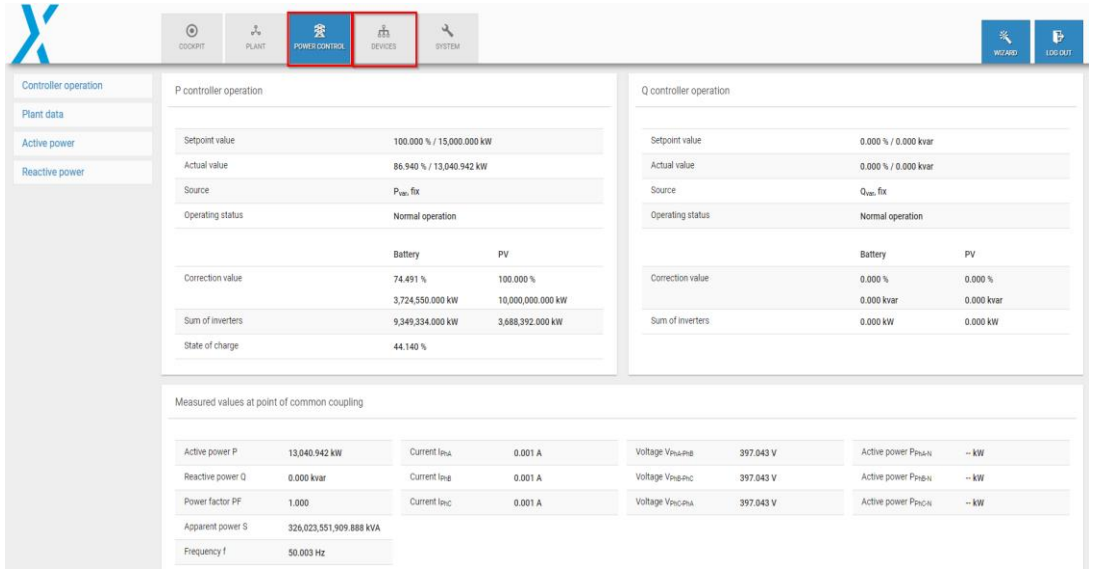
Power Control with HEMS license

The Power Control menu includes all functions for active and reactive power control, including the new operating modes such as:

- PV self-consumption
- Band Shaving

These changes only appear if the HEMS license is installed.

Otherwise, there are no changes in the Power Control menu compared to previous firmware versions.

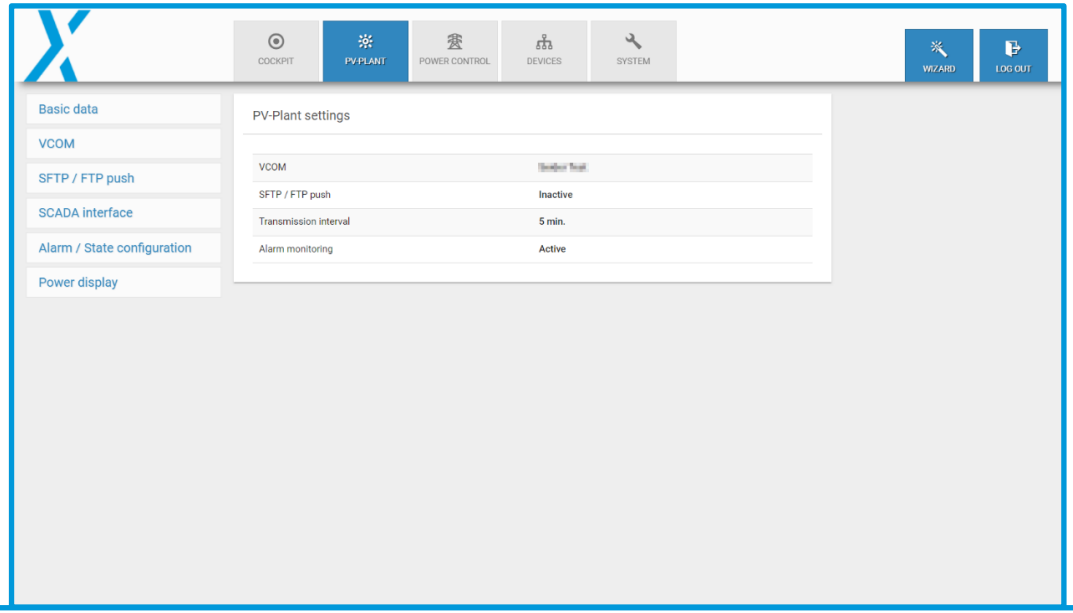


blue’Log® XM / XC

Setup of the blue'Log via the web interface using a browser
-> PV system

PV system

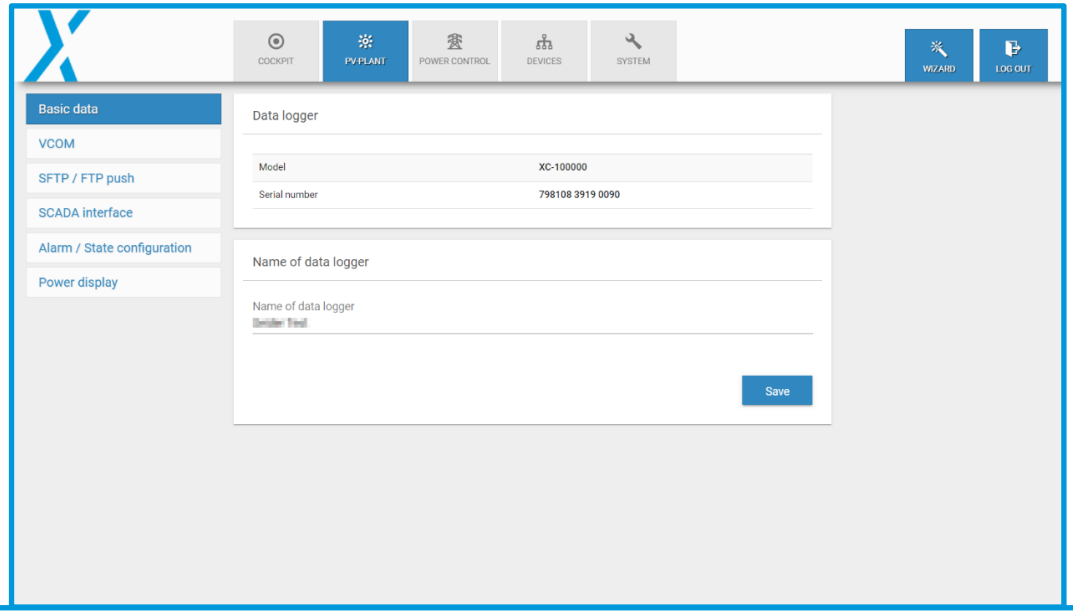
- Overview of the PV system
  - VCOM
  - FTP Push
  - Transfer interval
  - Alerting



PV system

Reference data

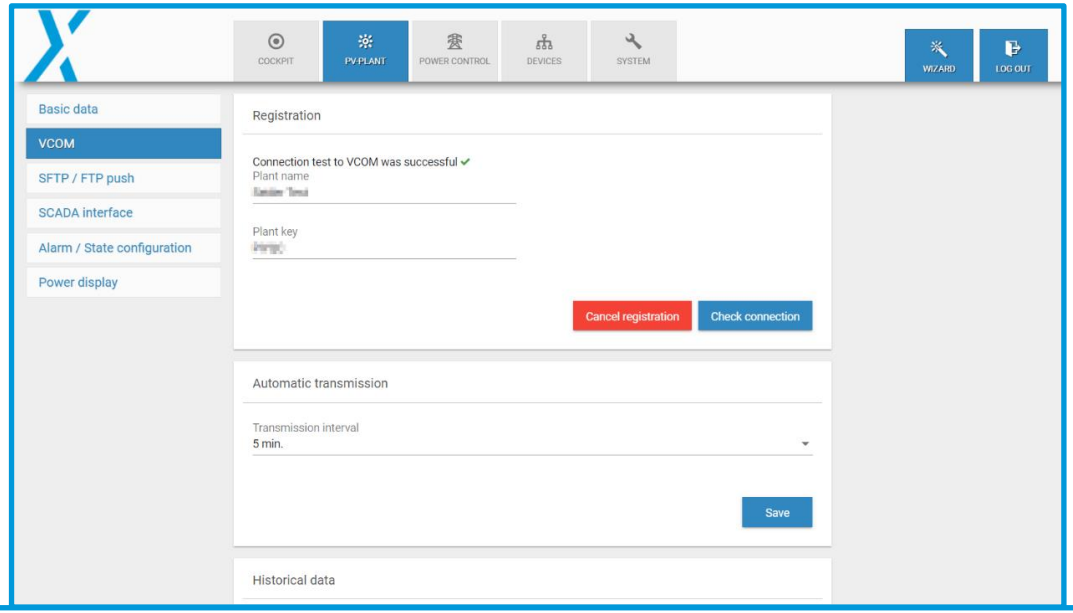
- Overview blue'Log
  - Model
  - Serial number
  - Data logger name
    (can be freely defined, helpful for systems with several data loggers)



PV system

VCOM

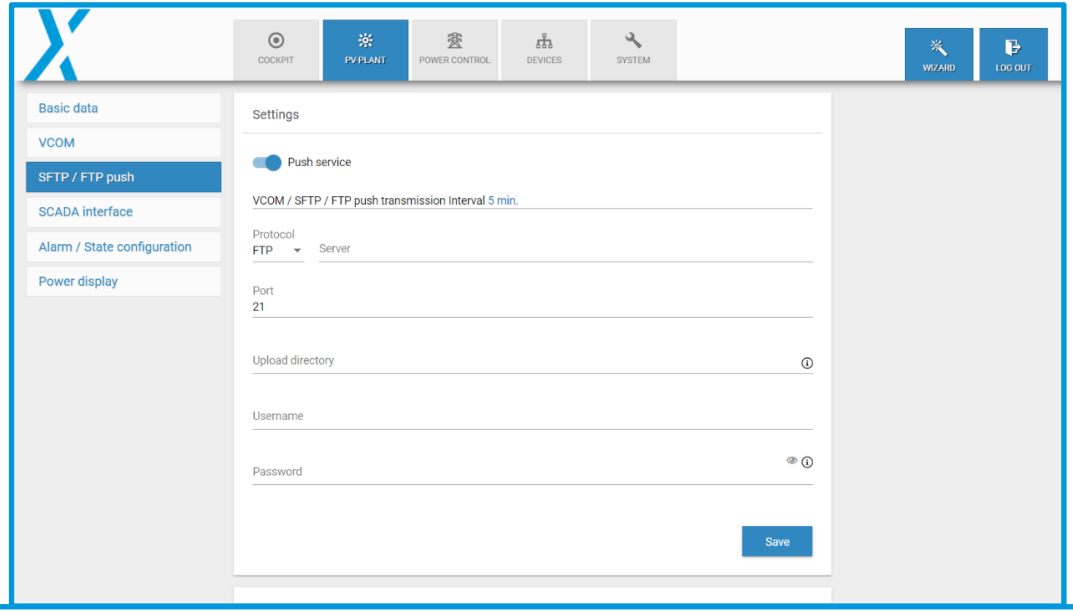
- Check connection to VCOM (to meteocontrol server)
- The blue'Log can be registered in the VCOM
- The transfer interval to the portal can be set
- Off / 5 min. / 15 min. / 1 h



PV system

FTP-Push

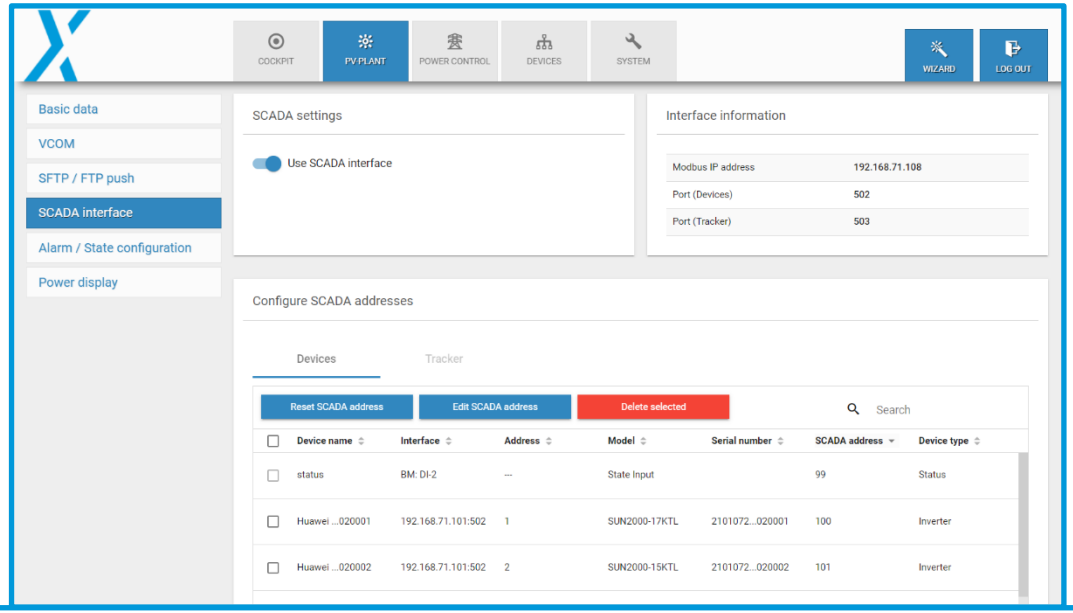
- Set FTP push on blue'Log, the data is transferred every 5 minutes
- FTP server attributes:
  - Server
  - Port
  - Directory
  - Username / Password
- Historical data can be transferred retrospectively via FTP push
-



PV system

SCADA Interface

- Activate SCADA interface for local data monitoring
- SCADA addresses can be configured for each device

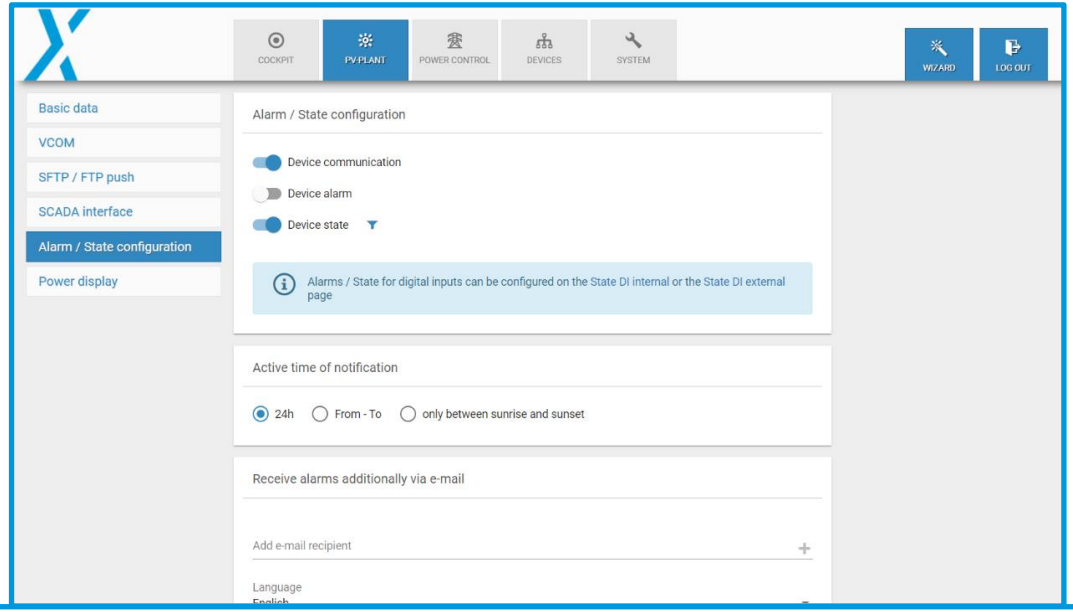


PV system

Alarm / Status Configuration

- Enable alerts from connected devices
  - Device communication
    Problems with data retrieval are alerted
  - Devices
    Alarms, e.g. from inverters, are passed through to the blue'Log (these can be "filtered" by error codes

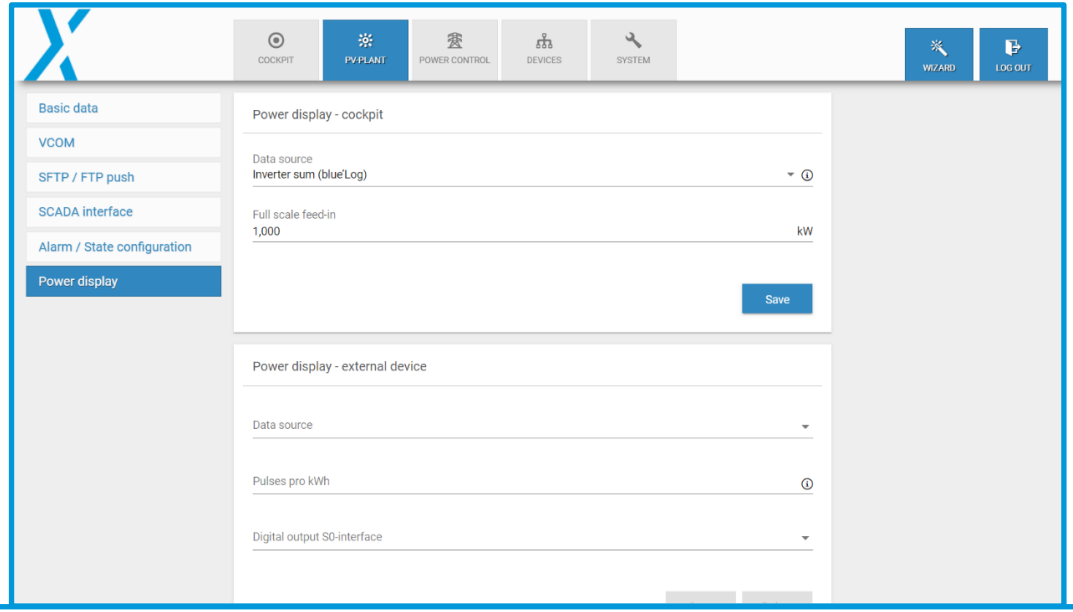
Active notification time (alarms at night can be suppressed)



PV system

Performance display

- The "speedometer display" in the cockpit can be set according to data source and full scale
- Final values for procurement and feed-in can be specified separately
- External displays with an S0 counter input are connected and configured on the blue'Log via a digital output

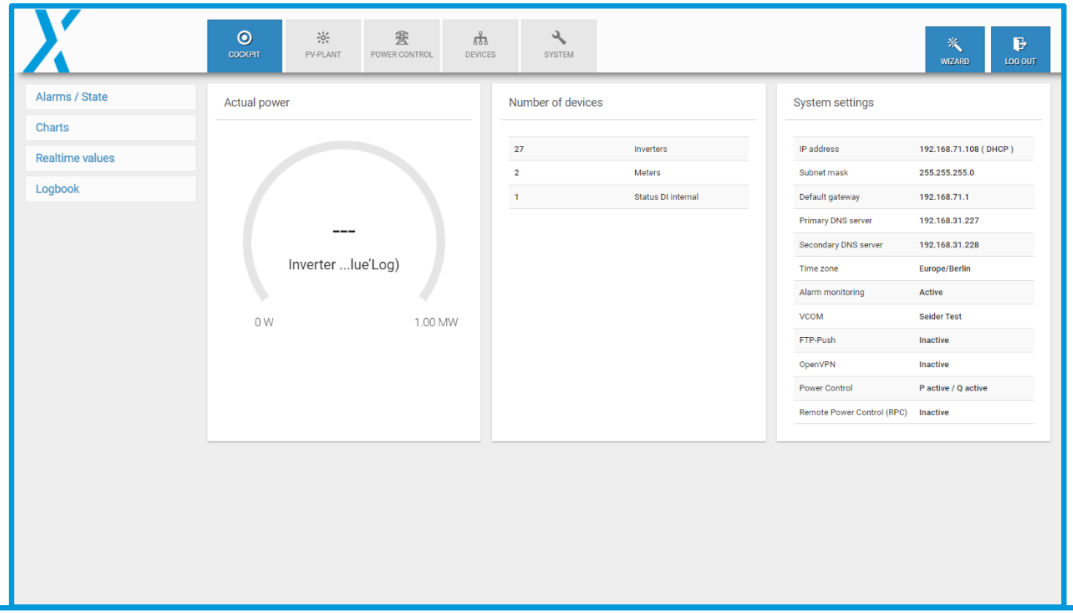


blue’Log® XM / XC

Presentation of the "Cockpit" functions

Cockpit

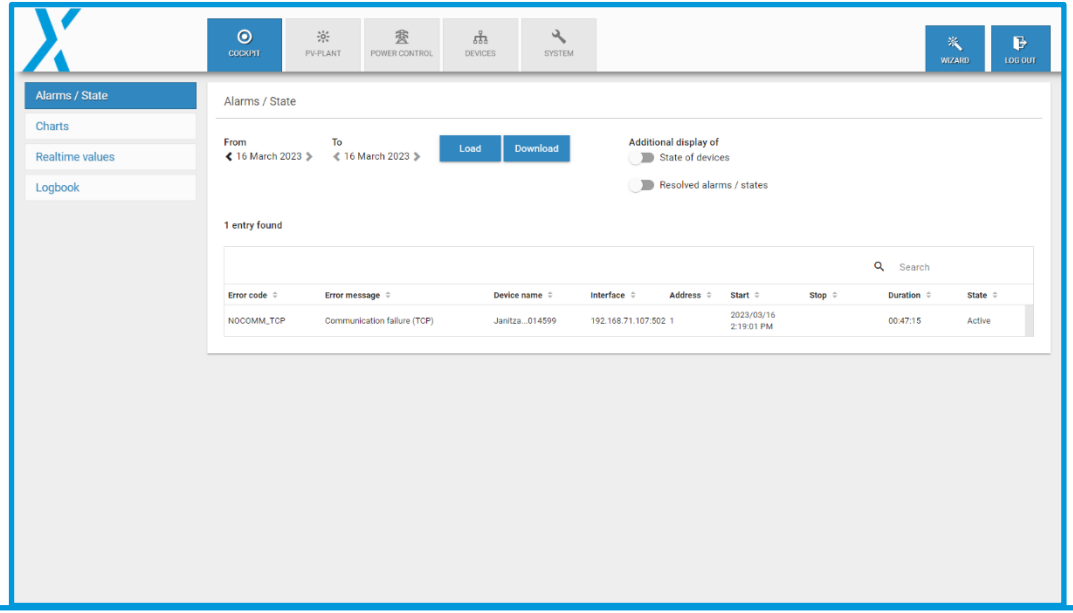
- Overview of the current values of the PV system
- Current AC power in the form of a "speedometer"
- Device listing and network settings are displayed



Cockpit

Alarms

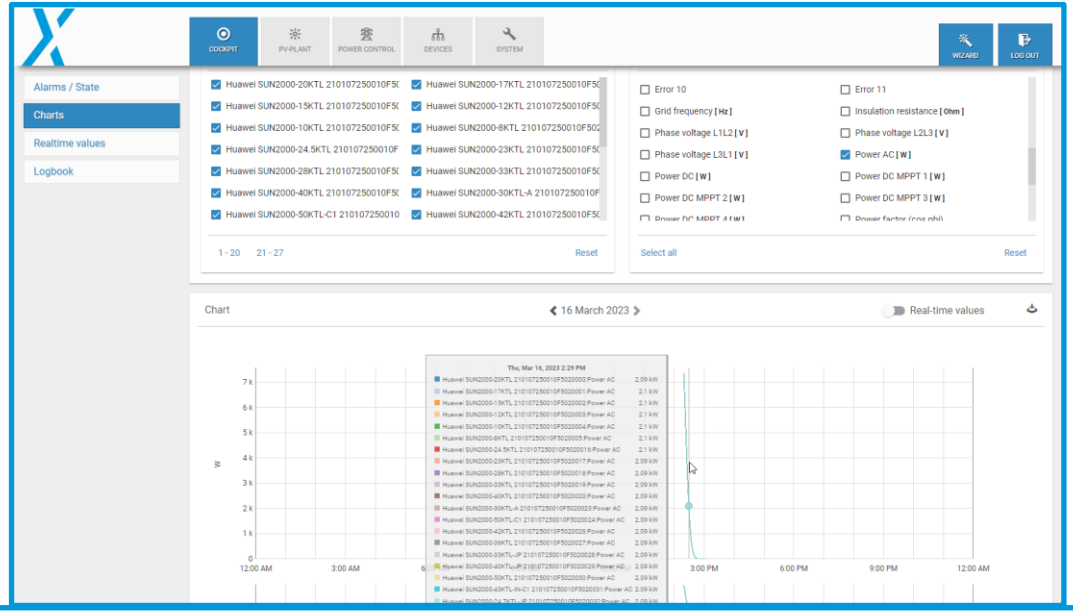
- Accrued alarms can be listed by date range
- The displayed alarms can be sorted according to the criteria:
  - Error code
  - Description
  - Device Name
  - Interface
  - Address
  - Start, Stop, Duration, Status



Cockpit

Diagrams

- Various measurement data can be selected via "Diagrams"
- First the device types, then the devices and finally the measured values are selected
- With the button "Show" the graphic is then loaded
- With the magnifying glass function, the area in the lower section can be moved and enlarged
- Convenient for troubleshooting
- Measured values from inverters, meters, sensors, etc.



Cockpit

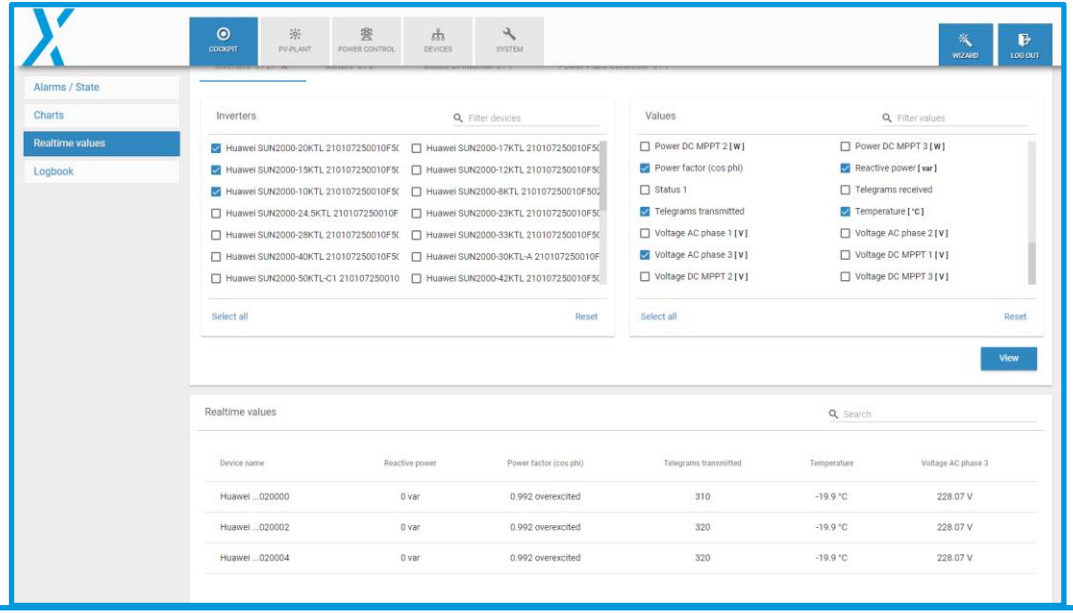
Real-time values

- Various measurement data can be selected and displayed via "real-time values"

- First the device types, then the devices and finally the measured values are selected
- With the button "Display" the table with the measured values is loaded
- Recommended after wiring the components

- Convenient for troubleshooting

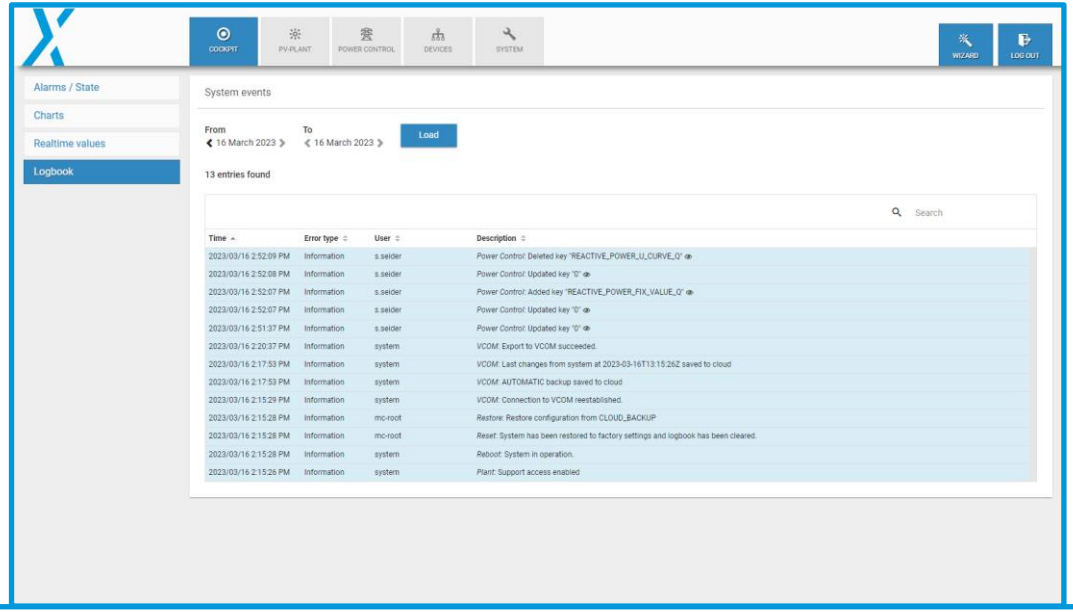
- Measured values from inverters, meters, sensors, etc.



Cockpit

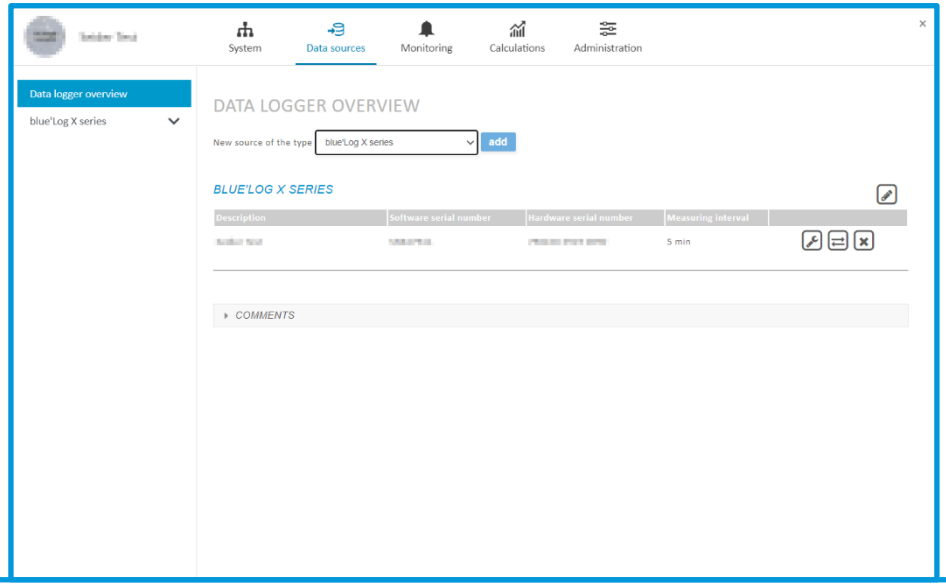
Logbook

- Changes and events from the past can be listed in the "Logbook"
- The records can be selected according to the time period



VCOM Integration

- Register blue'Log in VCOM or add it to an existing system
- blue'Log S/N, username and password is required
- The blue'Log can be accessed via web access via VPN via the VCOM



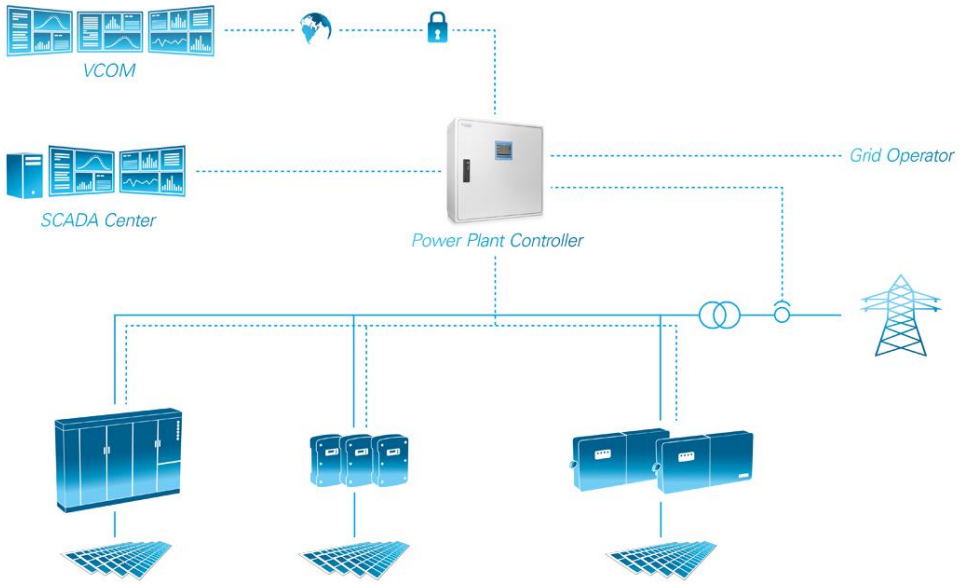
PPC

Explanation of Power Plant Controller functions

PPC

Properties

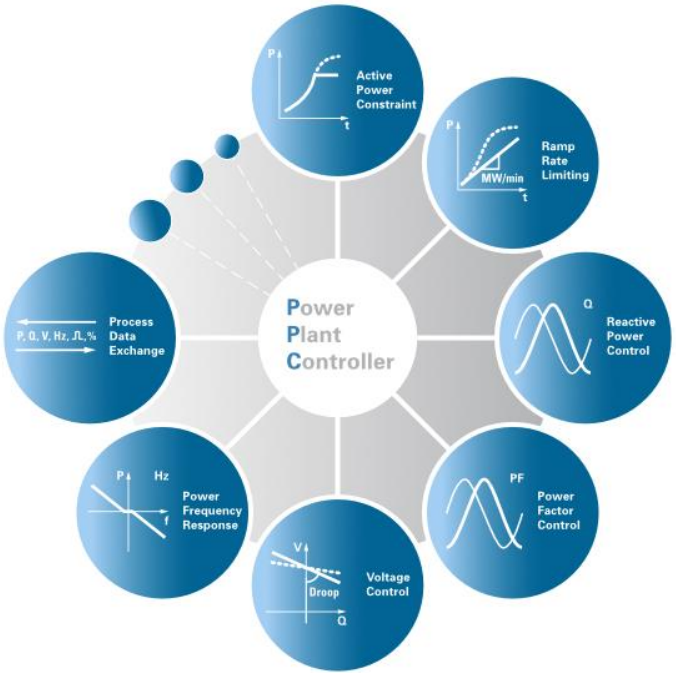
- Precise control of active and reactive power as well as voltage at the mains connection point
- Integrated solutions for mixed parks through manufacturer independence
- Protocols IEC 60870-5-101/-104, IEC 61850, DNP3, Modbus
- Graphical user interface to support commissioning



PPC

Properties

- Power limitation, reactive power control based on characteristic curve, frequency stability and process data exchange - the power plant control offers a variety of functions that ensure reliable grid integration of PV systems.
-
- This range of functions can be flexibly extended and adapted to any system topology to meet the specific project requirements. All interfaces have a modular structure and thus offer high scalability.



THANK YOU VERY MUCH

FOR YOUR ATTENTION

#onemc

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