



***blue'Log<sup>®</sup> 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<sup>®</sup> XM / XC***

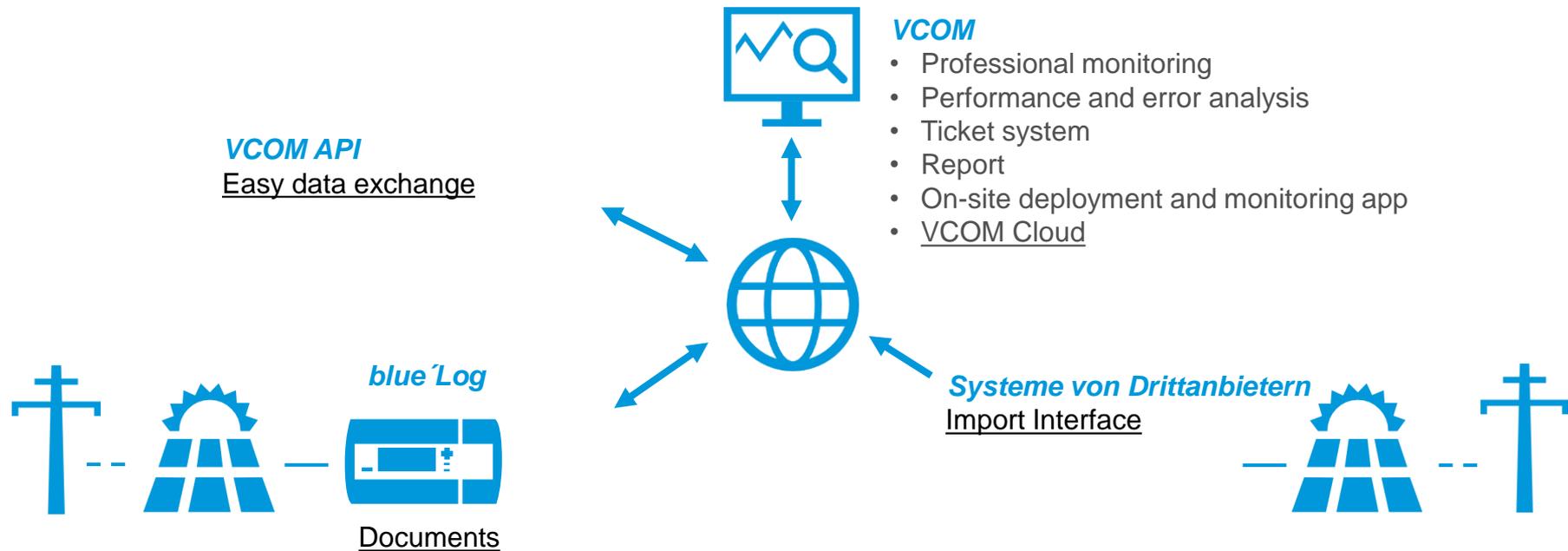
*Explanation of the abbreviations or their meaning*

# Definitions / Abbreviations

- mc ... meteocontrol
- blue'Log XM ... **M**onitoring
- blue'Log XC ... **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**cquisition
- 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



# ***blue'Log<sup>®</sup> 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)

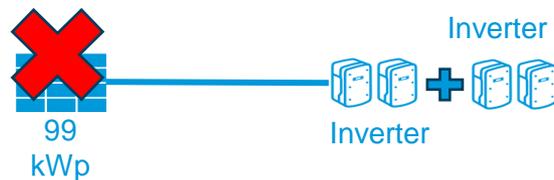
# ***blue'Log<sup>®</sup> XM / XC***

*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<sup>®</sup> 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

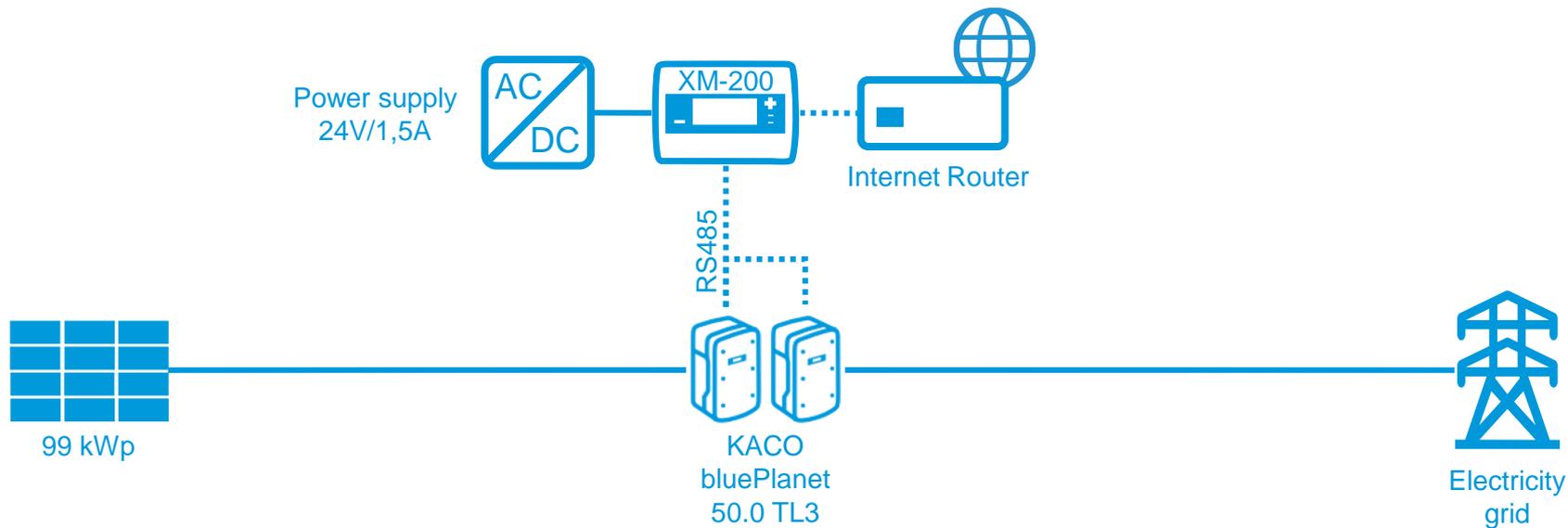
## Use case 1

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



## 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:

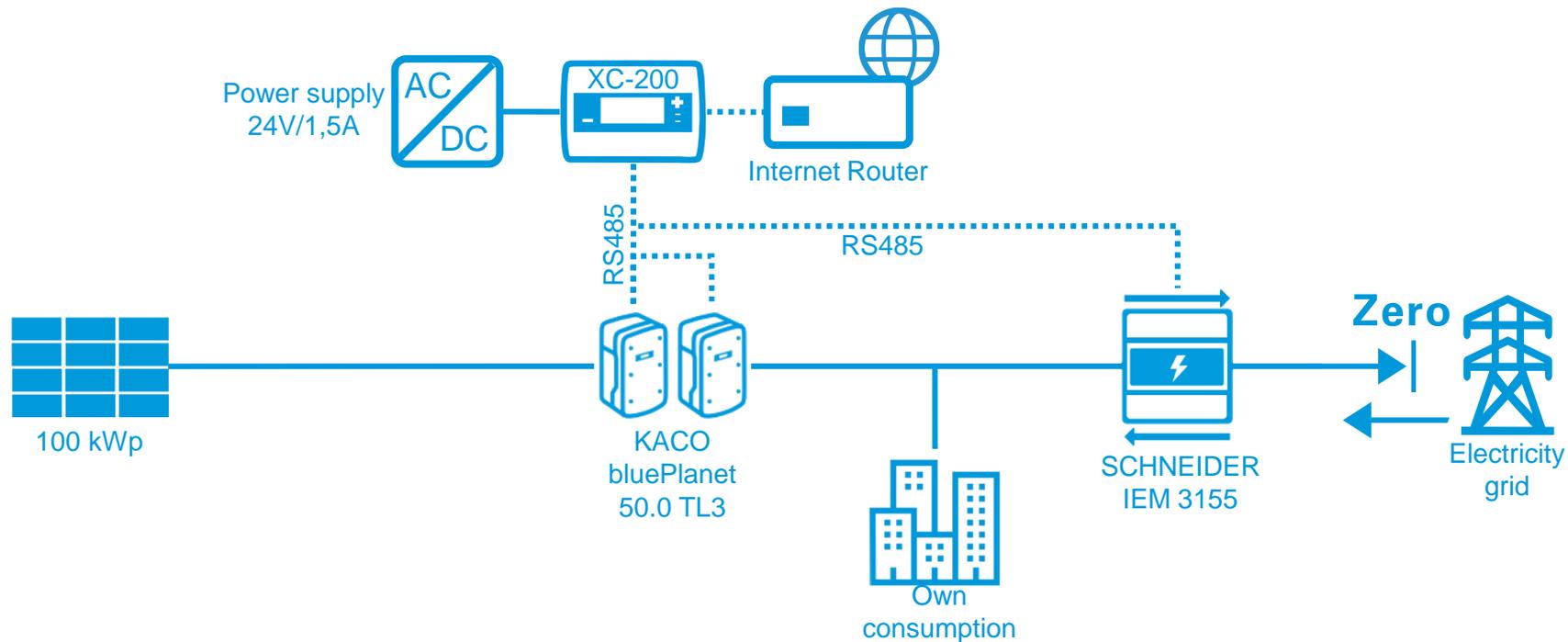
- 100 kWp\*
- 2 x KACO blueplanet 50.0 TL3,  
100kW\*\*
- Zero-feed-in with Own consumption
- Communication: ADSL

\*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



## 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

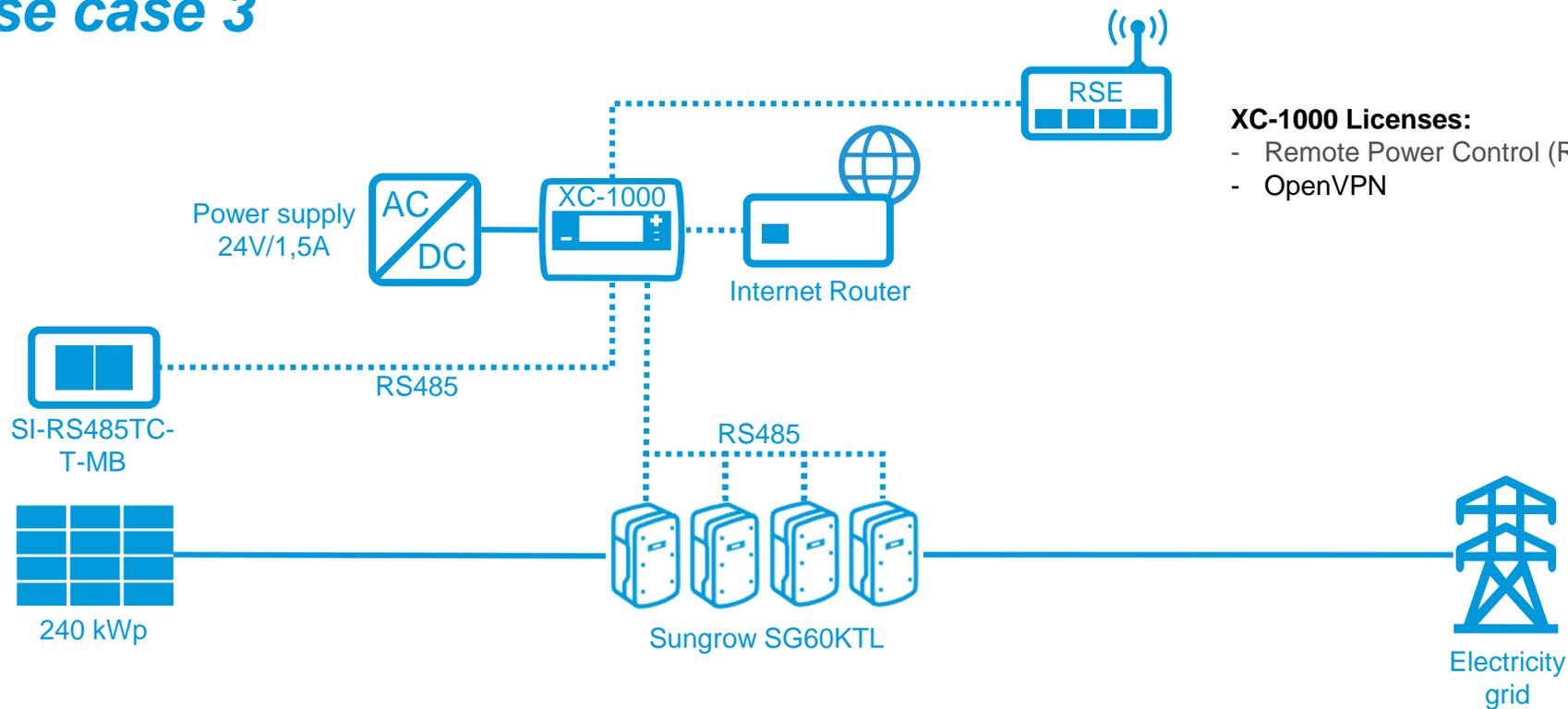
\*Maximum kWp active power of the solar panels

\*\*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:

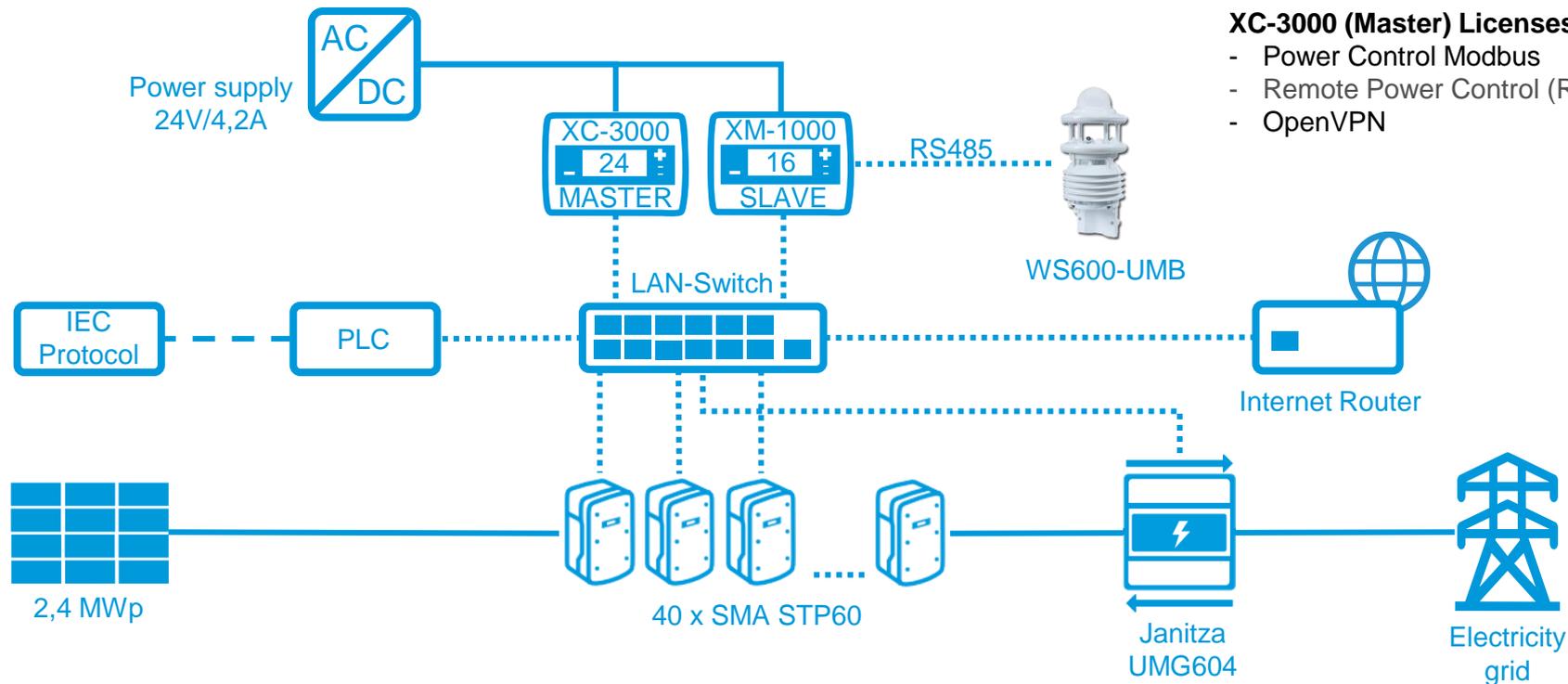
- 2.4 MWp\*
- 40 x SMA STP60, 2,4MW\*\*
- Active and reactive power control: IEC Protokoll
- Wetter Station
- Communication: ADSL

\*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

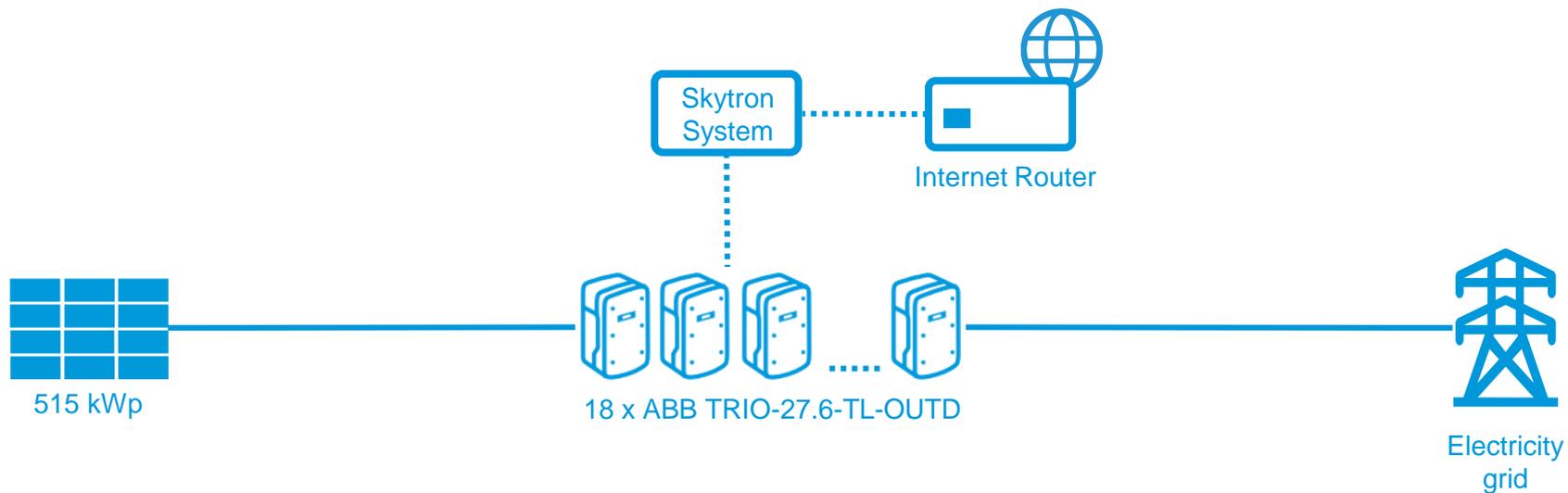
\*Maximum kWp active power of the solar panels

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

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

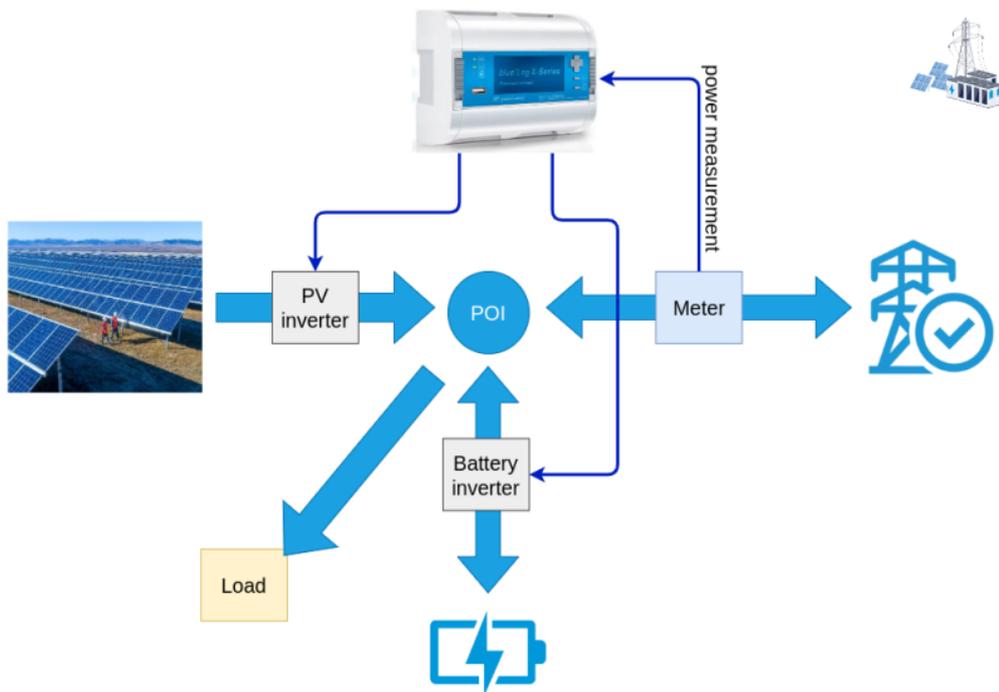
### Which components are needed?

# Use case 5



# ***HEMS (Hybrid Energy Management System)***

*blue'Log in conjunction with a HEMS system*



## PV and Storage

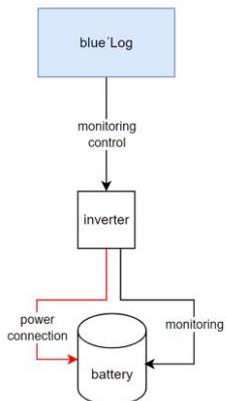
In addition to controlled PV, storage can now be controlled.

Different operation modes (business cases) are supported:

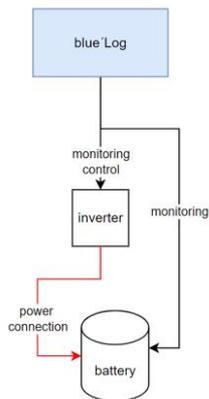
- Solar -self consumption
- Zero feed in
- Band shaving (minimize battery (dis)charge activity)
- Energy shifting
- Energy arbitrage (external energy management)

## Battery control

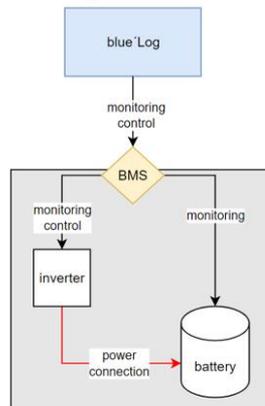
Virtual battery device through inverter



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:

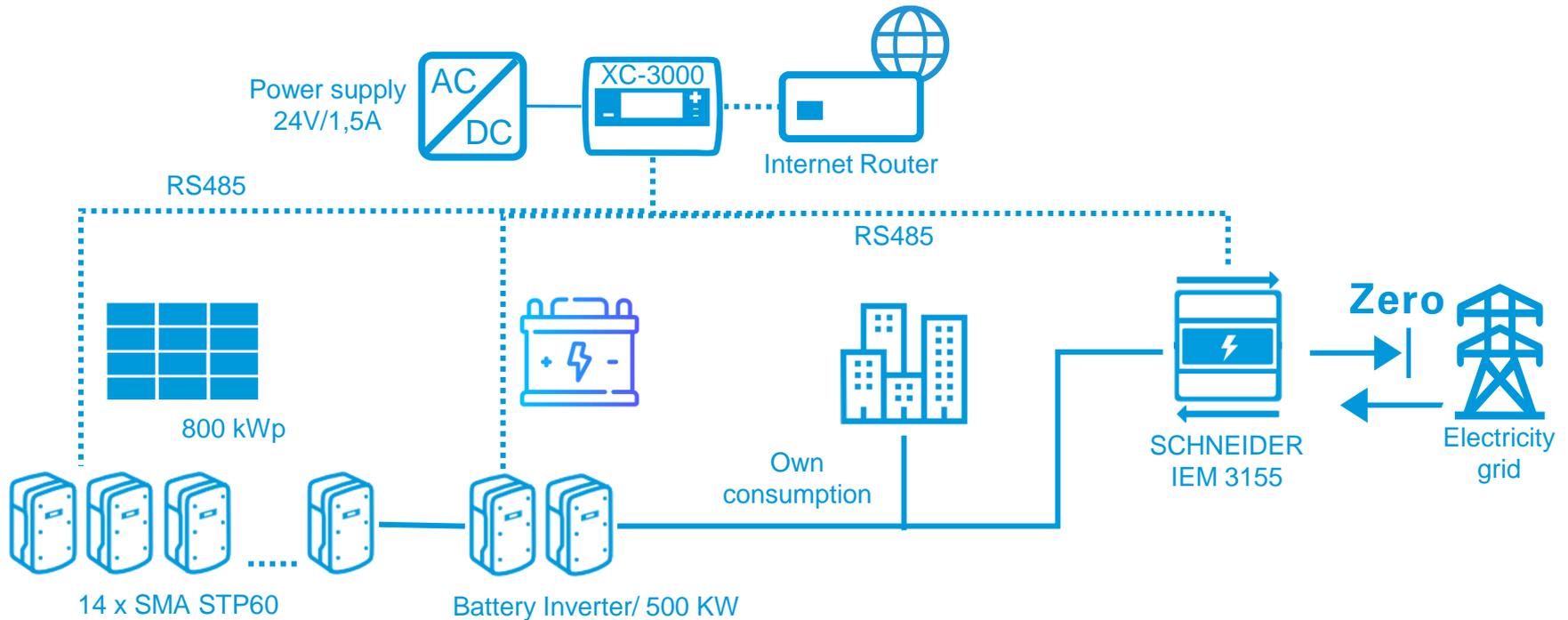
- PV Panel 800kWp\*
- Inverter 840kW
- Battery 500kW
- Battery capacity 700kWh
  
- 14 x SMA STP60\*\*
- Zero-feed-in with self consumption
- Comunication: ADSL

\*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



## 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

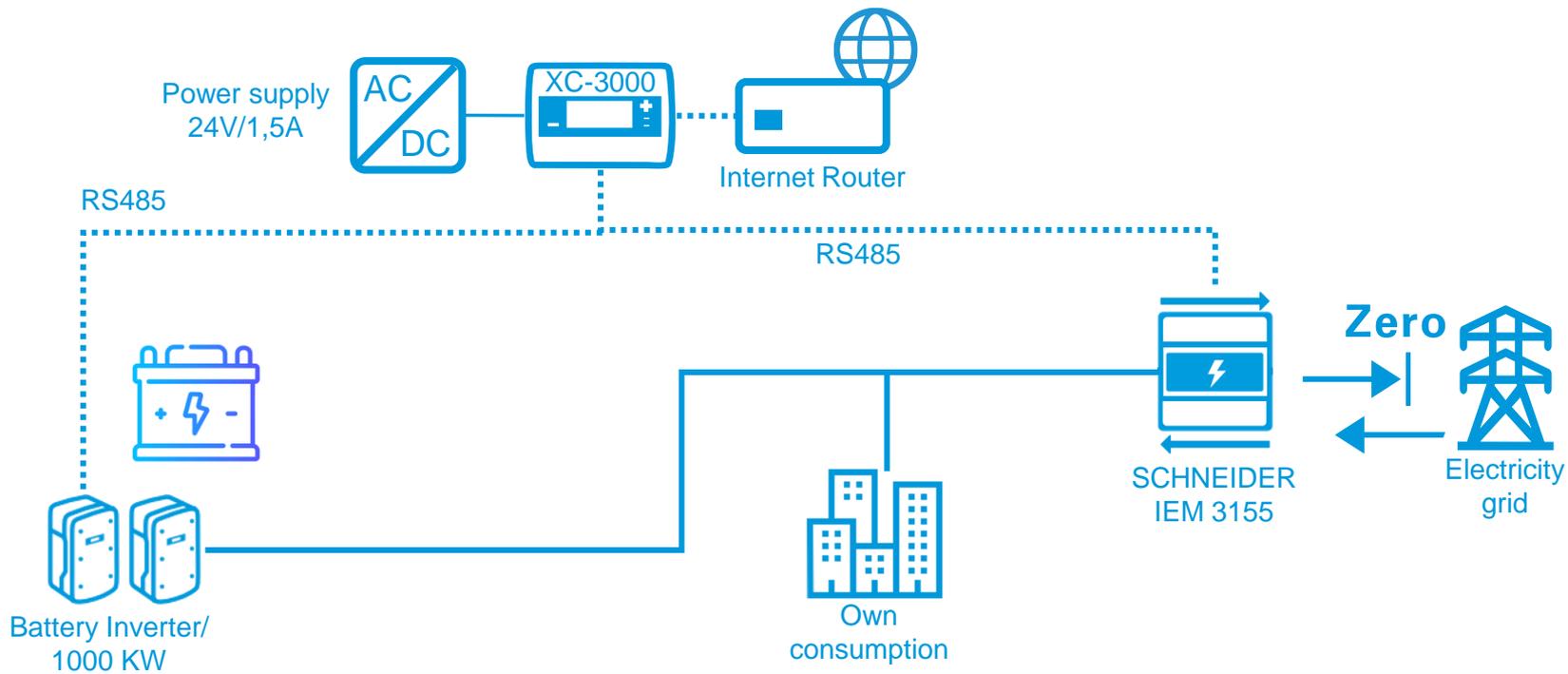
Question:

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



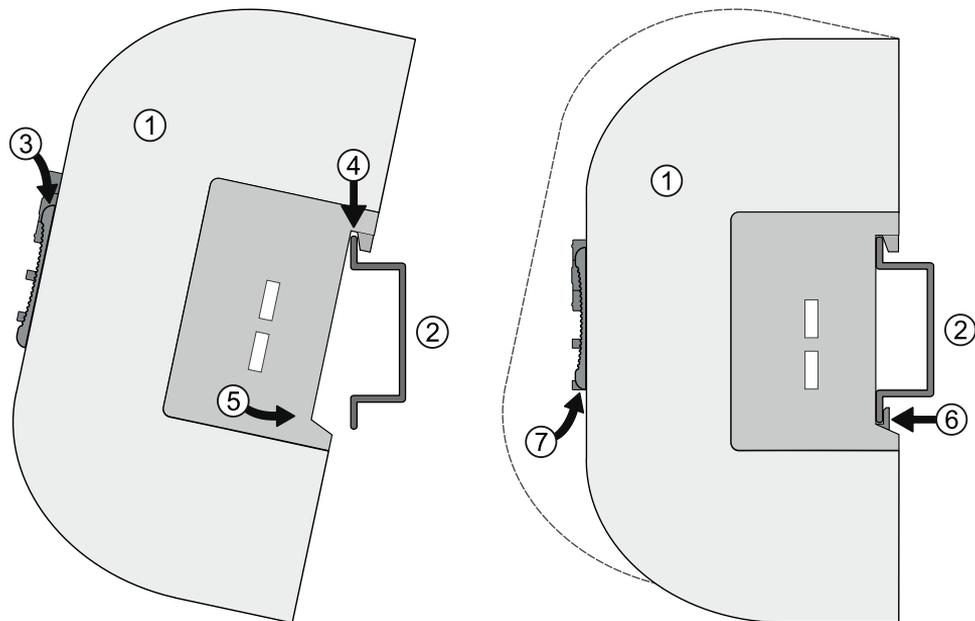
# ***blue'Log<sup>®</sup> XM / XC***

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

# Installation

## DIN rail mounting

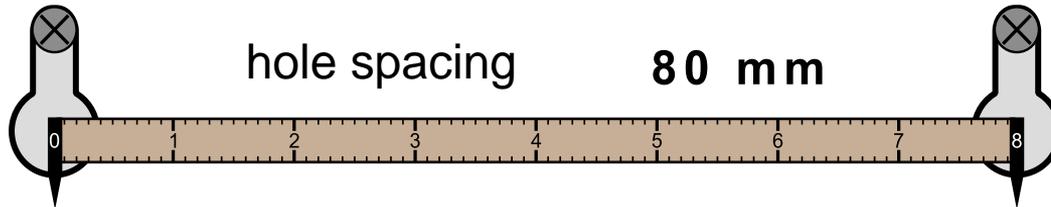
1. blue'Log XM / XC
2. Rail
3. Open latch (bottom)
4. Top edge DIN rail
5. Press device
6. Latching nose
7. Close latch (top)



# Installation

## Wall Installation

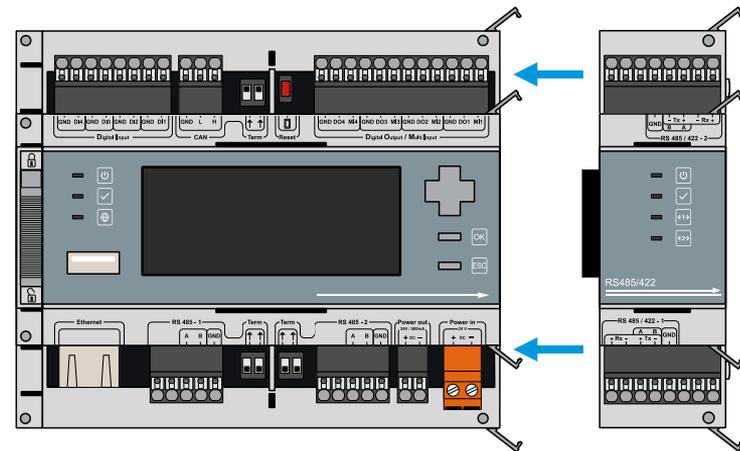
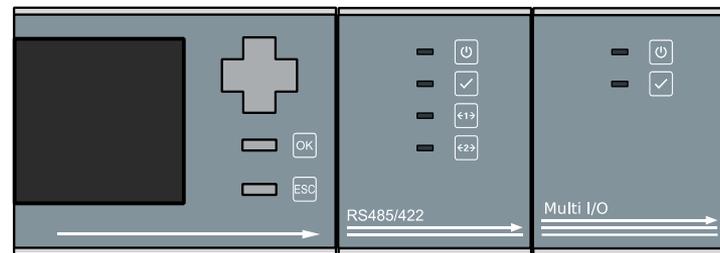
1. Attach two screws to the wall at a distance of 80 mm.
2. Attach the device to the rear inlets. Slide the device down and check for a correct fit.
3. For disassembly, slide the device upwards and remove it to the front.



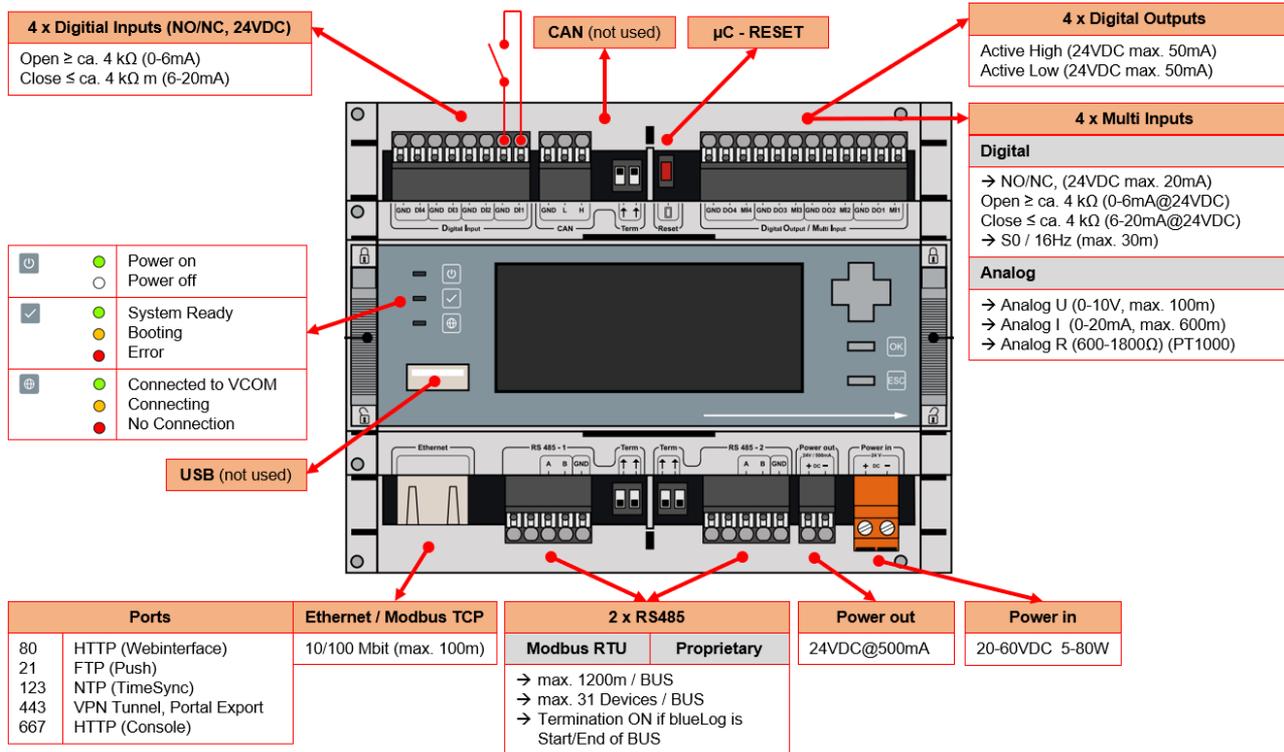
# Installation

## 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<sup>®</sup> XM / XC***

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

# Configuration

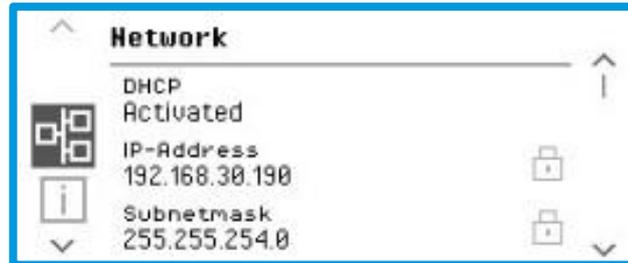
## Providing access to the web interface

- **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



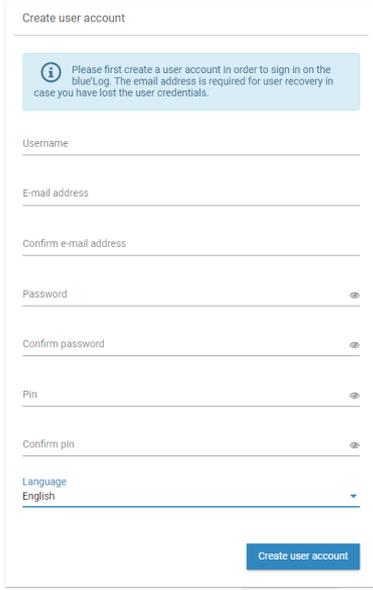
# Configuration

## 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.



Create user account

Please first create a user account in order to sign in on the blue'Log. The email address is required for user recovery in case you have lost the user credentials.

Username

E-mail address

Confirm e-mail address

Password

Confirm password

Pin

Confirm pin

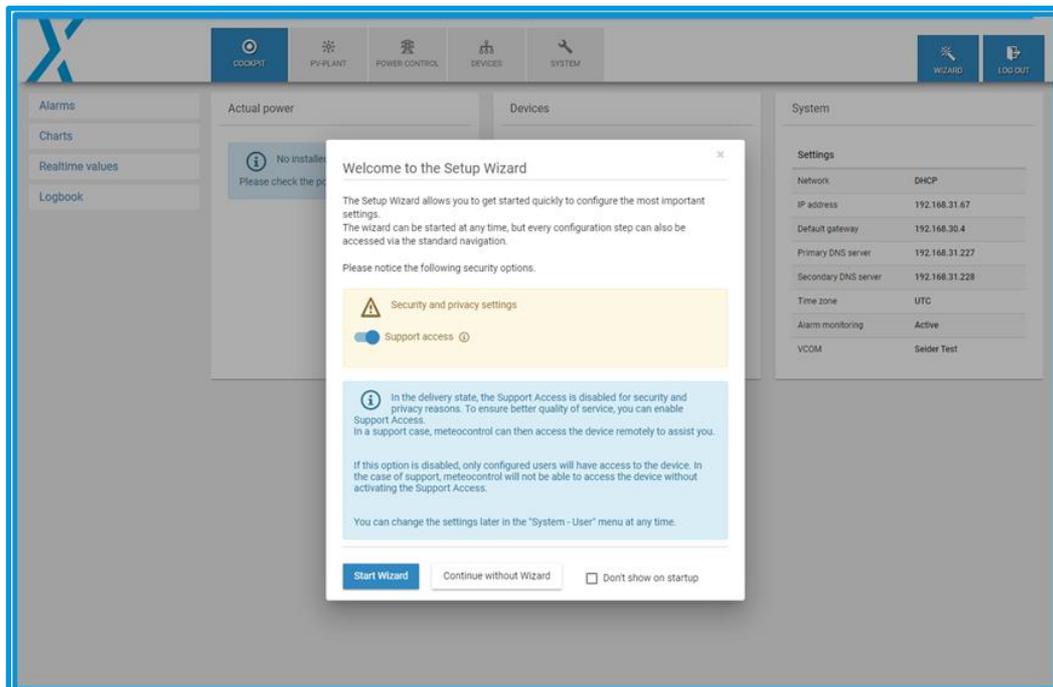
Language  
English

Create user account

# 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
- 

The screenshot displays the Configuration System interface. At the top, there is a navigation bar with a large 'X' logo on the left and several menu items: COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, SYSTEM (highlighted in blue), WIZARD, and LOG OUT. Below the navigation bar, a sidebar on the left contains a list of configuration categories: Ethernet, VPN connection, Date / Time, Add-on modules, User, License, SSL certificate, Update, Data center, Backup and Restore, and Reboot. The main content area is titled 'System settings' and contains a table of network parameters.

System settings	
IP address	192.168.71.108 ( DHCP )
Subnet mask	255.255.255.0
Default gateway	192.168.71.1
Primary DNS server	192.168.31.227
Secondary DNS server	192.168.31.228
Time zone	Europe/Berlin

# 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
- 

The screenshot displays the 'System' configuration interface for 'Ethernet'. The top navigation bar includes 'COCKPIT', 'PV-PLANT', 'POWER CONTROL', 'DEVICES', 'SYSTEM', 'WIZARD', and 'LOG OUT'. The left sidebar lists various system settings, with 'Ethernet' selected. The main configuration area is organized into four sections:

- DHCP:** A toggle switch is turned on, labeled 'Automatically obtain IP settings (DHCP)'.
- DNS:** A toggle switch is turned on, labeled 'Automatically obtain DNS address'.
- Proxy server:** A toggle switch is turned off, labeled 'Use proxy server'.
- MTU - Maximum transmission unit:** A toggle switch is turned on, labeled 'Use MTU default value (1500)'.

On the right side, a 'Actual ethernet settings' panel displays the following configuration:

IP address	192.168.71.108
Subnet mask	255.255.255.0
Default gateway	192.168.71.1
Primary DNS server	192.168.31.227
Secondary DNS server	192.168.31.228
Proxy server	Inactive
Hostname	Support
MAC address	00:24:80:01:3c:64

# 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

The screenshot displays the 'SYSTEM' configuration page for 'VPN connection'. The interface includes a top navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, and SYSTEM. A left sidebar lists various system settings: Ethernet, VPN connection (selected), Date / Time, Add-on modules, User, License, SSL certificate, Update, Data center, Backup and Restore, and Reboot. The main content area is titled 'OpenVPN connection' and features a toggle switch for 'Activate OpenVPN'. Below this, an information box states: 'Allowed file extensions .ovpn, .conf and .zip. The individual configuration file (.ovpn or .conf) must have the certificate and key embedded. Uploading a ZIP file allows certificate, key and password files to be single files.' At the bottom right of this section are 'Select file' and 'Upload' buttons.

# 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

The screenshot shows the meteocontrol web interface. At the top, there is a navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, SYSTEM (highlighted), WIZARD, and LOG OUT. On the left, a sidebar menu lists various system settings: Ethernet, VPN connection, Date / Time (highlighted), Add-on modules, User, License, SSL certificate, Update, Data center, Backup and Restore, and Reboot. The main content area displays the 'Date & Time settings' page. It features a dropdown menu for 'Time synchronisation' set to 'system default' and a 'Time zone' field set to 'Europe/Berlin' with a world map icon and a close button. A 'Save' button is located at the bottom right of the settings panel.

# 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

The screenshot displays the meteocontrol web interface. At the top, there is a navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, SYSTEM (highlighted), WIZARD, and LOG OUT. On the left side, a sidebar menu lists various system settings: Ethernet, VPN connection, Date / Time, Add-on modules (highlighted), User, License, SSL certificate, Update, Data center, Backup and Restore, and Reboot. The main content area shows the 'Add-on modules' section with a table header containing columns for 'Device', 'Type', and 'Serial number'. The table body is currently empty.

# 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
  -

The screenshot displays the 'User management' interface. On the left is a navigation sidebar with 'User' selected. The main panel shows a 'Support access' toggle (checked), a search bar, and a table of users. The table contains two entries, both with 'Service' as the user group. Below the table is an 'LDAP' section with a 'Use LDAP server' toggle (unchecked) and a 'Save' button.

Username	User group	Password	Pin	E-mail address	Actions
...	Service	*****	****	...	[Edit] [Delete]
...	Service	*****	****	...	[Edit]

# 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)
- 

Feature	Status
Maximum power	100,000 kW
Maximum number of devices	30
Power Control	✓
Power Control via Modbus	✓
Remote Power Control (RPC)	✓
Zero Feed-In (Automatic grid disconnection)	✓
SCADA	✓
FTP-Push	✓
OpenVPN	✓
IT infrastructure (LDAP, SSL, SCEP)	✓
WEBlog Slave mode	✓
Modbus configurator blue'log XM / XC	✓
Power Plant Controller	✓

# 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"

The screenshot displays the 'System' configuration page in the meteocontrol interface. The left sidebar contains a menu with the following items: Ethernet, VPN connection, Date / Time, Add-on modules, User, License, **SSL certificate** (highlighted), Update, Data center, Backup and Restore, and Reboot. The main content area is titled 'SSL settings' and features two toggle switches: 'Use SSL' (which is turned on) and 'Use SCEP' (which is turned off). Below this, there is a section for 'SSL certificate for web server' with a 'Select file' button and an 'Upload certificate (\*.pfx, \*.p12)' button.

# 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)

The screenshot shows the 'System Update' page in the meteocontrol web application. The interface includes a top navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, SYSTEM, WIZARD, and LOG OUT. A left sidebar contains a menu with options: Ethernet, VPN connection, Date / Time, Add-on modules, User, License, SSL certificate, Update (selected), Data center, Backup and Restore, and Reboot. The main content area is titled 'Update' and features an information message: 'Update your data logger through update server. When updating the Firmware or Driver package no data will get lost as well as the configuration of the device will remain.' Below this is a 'Check update server' button. A table displays the update status for various packages:

Package	Installed	Available	Update
Firmware	26.0.6	26.0.6	Initiate update
Driver	26.0.6	26.0.6	Initiate update
Controller	4.1.0	4.1.0	
SCADA	2.16.0	2.16.0	

At the bottom right of the update section, there are two buttons: 'View release notes' and 'Software licenses'.

# 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
- 

The screenshot displays the 'Backup and Restore' configuration page in the VCOM system interface. On the left, a navigation menu lists various system settings, with 'Backup and Restore' highlighted. The main content area is split into two sections: 'Save configuration' and 'Restore configuration'.

**Save configuration section:**

- Contains an information icon and text: "Here you can save all settings of the data logger in a backup file, recorded measurement data and the OpenVPN certificate are not saved."
- Includes a note: "If the data logger is registered with VCOM, backups are automatically created after configuration changes and uploaded to the VCOM Cloud during the night. If desired, you can also create and upload a backup manually."
- Features a toggle switch for "Automatic backup to VCOM Cloud", which is currently turned on.
- Shows the "Last backup: 16 Mar 2023 2:17 PM".
- Includes two buttons: "VCOM Cloud backup" and "Download".

**Restore configuration section:**

- Contains a warning icon and text: "Here you can restore the settings of a data logger with a previously stored backup file."
- Includes a note: "The firmware and the scope of the license must at least correspond to the status of the secured data logger. The network settings remain unchanged and won't be downloaded from the backup file."
- Includes a bold warning: "The power control master-slave configuration is not included in the backup and must be reconfigured after a restore."

# 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
- 

The screenshot shows the meteocontrol web interface. At the top, there is a navigation bar with a large blue 'X' logo on the left and several menu items: COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, SYSTEM (highlighted in blue), WIZARD, and LOG OUT. Below the navigation bar is a sidebar menu with the following items: Ethernet, VPN connection, Date / Time, Add-on modules, User, License, SSL certificate, Update, Data center, Backup and Restore, and Reboot (highlighted in blue). The main content area is titled 'System reboot' and contains a yellow warning box with a triangle icon and the text: 'Restart only in emergencies. Configuration changes do not require a restart. Once the data logger has been restarted, you will be informed on this page.' Below the warning box is a blue button labeled 'Initiate reboot'.

# ***blue'Log<sup>®</sup> 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

The screenshot shows the 'Configuration' page for 'Devices'. The sidebar on the left contains the following menu items: Inverters, Sensors, Meters, String monitoring, Status DI internal, Status DI external, Digital output, Tracker, Batteries, Genset, Power plant controller, and Modbus configurator. The main content area is divided into two sections:

**Number of devices**

27	Inverters
2	Meters
1	Status DI internal

**Interface settings - Delay and timeout**

Interface	Baud rate	Frame settings	Timeout	Read delay	Write delay
BM: RS485-1					
BM: RS485-2					
Ethernet			5,000 ms	0 ms	0 ms

# 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

The screenshot shows the 'DEVICES' section of the meteocontrol interface. On the left is a sidebar with navigation options: Inverters, Sensors, Meters, String monitoring, Status DI internal, Status DI external, Digital output, Tracker, Batteries, Genset, Power plant controller, and Modbus configurator. The main area is titled 'Add new inverter' and contains a 'Device selection' form with dropdowns for 'All vendors' and 'Series', and a 'Show details' dropdown. Below this is a 'Start scan' button. The 'Installed devices' section features a table with columns: Device name, Interface, Address, Model, Device role, Serial number, Firmware, and Actions. The 'Device role' column is circled in red, showing 'Battery' and 'PV' roles. The table also includes action buttons (edit and delete) for each device.

Device name	Interface	Address	Model	Device role	Serial number	Firmware	Actions
Battery_r (CL)	192.168.72.125/1502	1	Closed_inverter	Battery			[Edit] [Delete]
PV Inve... (CL)	192.168.72.125/1502	2	Closed_inverter	PV			[Edit] [Delete]

# Devices

## Sensors

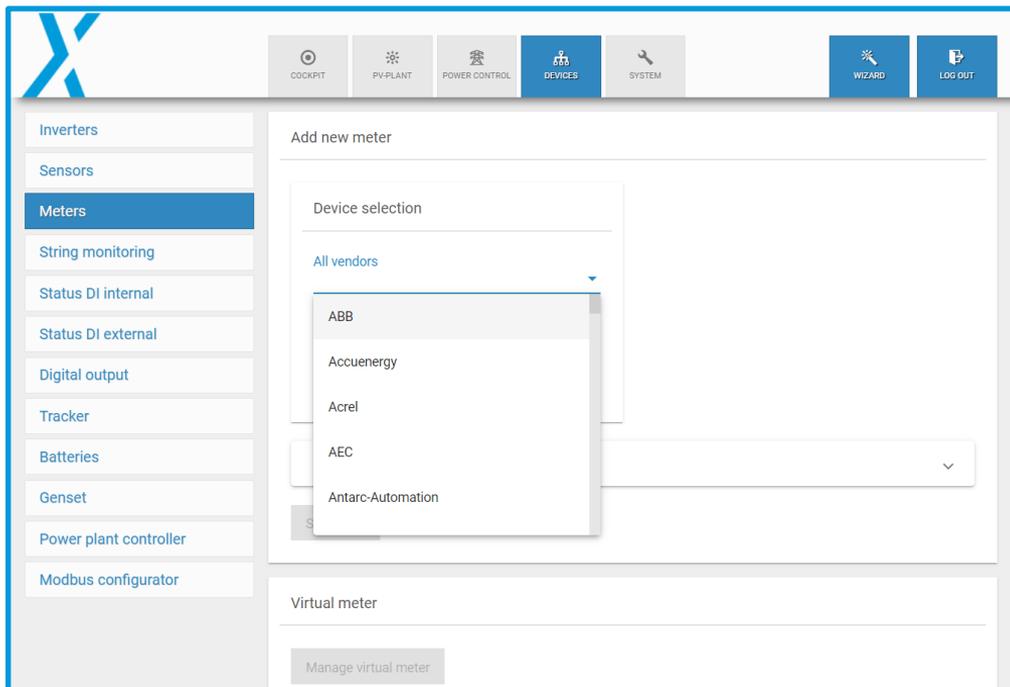
- Under "Device selection" first select the sensor manufacturer
- BETA drivers (are grayed out) and can be scanned via "technical support"
- Then specify the "Series" (device type)
- Select "Interface" (depends on the device)
- Under "Advanced Settings" the scan area can be set

The screenshot displays the 'Add new sensor' interface in the meteocontrol system. On the left, a sidebar menu lists various device categories: Inverters, Sensors (highlighted), Meters, String monitoring, Status DI internal, Status DI external, Digital output, Tracker, Batteries, Genset, Power plant controller, and Modbus configurator. The main content area is titled 'Add new sensor' and features a 'Device selection' dropdown menu. This menu is currently open, showing a list of vendors: 'All vendors', 'Atonometrics', 'Brodersen', 'Campbell Scientific', 'control elettronica srl', and 'DAVIS'. Below the vendor list, there is a search input field and a dropdown arrow. At the bottom of the interface, there are buttons for 'Edit selected', 'Delete selected', and 'Download Events', along with an information icon and a search bar.

# 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

The screenshot displays the 'Add new string monitoring' configuration page in the meteocontrol interface. The left sidebar contains a list of device categories: Inverters, Sensors, Meters, String monitoring (highlighted), Status DI internal, Status DI external, Digital output, Tracker, Batteries, Genset, Power plant controller, and Modbus configurator. The main content area features a 'Device selection' dropdown menu with a list of vendors: All vendors, ABB, AROS (Riello), Astrid Energy Enterprises, Carlo Gavazzi, and Chint. Below this, there is an 'Installed devices' section with buttons for 'Edit selected', 'Delete selected', and 'Download Events', and a search bar.

# 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

The screenshot displays the 'Status DI internal' configuration page in the Meteocontrol web interface. The left sidebar lists various device categories, with 'Status DI internal' selected. The top navigation bar includes tabs for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES, and SYSTEM, along with buttons for WIZARD and LOG OUT. The main content area shows a 'Manage statuses' section with a table of device configurations.

Device name	Interface	Normal state	Alarm / State	Actions
<input type="checkbox"/> status	BM: DI-2	open (NO)	State	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Device count: 1

# 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

The screenshot displays the 'DEVICES' section of the meteocontrol interface. The left sidebar lists various device categories, with 'Status DI external' selected. The main content area is titled 'Manage statuses' and includes a 'Device selection' section with dropdown menus for 'All vendors' and 'Series'. Below this is a 'Show details' dropdown and a 'Start scan' button. At the bottom, there is an 'Installed devices' section with a search bar and buttons for 'Edit selected', 'Delete selected', and 'Download Events'.

# 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)

The screenshot shows the 'Manage digital outputs' interface. On the left is a sidebar menu with the following items: Inverters, Sensors, Meters, String monitoring, Status DI internal, Status DI external, Digital output (highlighted), Tracker, Batteries, Genset, Power plant controller, and Modbus configurator. The main panel has a top navigation bar with buttons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES (active), and SYSTEM. On the right side of the main panel are buttons for WIZARD and LOG OUT. The 'Manage digital outputs' section includes a '+ Add' button, 'Edit selected', and 'Delete selected' buttons. Below these is a search bar and a table with the following columns: Device name, Interface, Logic level, Activation, Signal, State, and Actions. The table is currently empty, and the text 'Device count: 0' is displayed below it.

# 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

The screenshot displays the 'Add new tracker' configuration page in the meteocontrol system. The interface includes a top navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES (active), and SYSTEM, along with WIZARD and LOG OUT buttons. A left sidebar lists various device categories, with 'Tracker' selected. The main content area features a 'Device selection' dropdown menu that is open, showing a list of vendors: AlionEnergy, Arctech Solar, Array Technologies, Braux, and Comal SPA. Below the dropdown is a search input field. At the bottom of the page, there is a section for 'Installed devices' with buttons for 'Edit selected', 'Delete selected', and 'Download Events', and a search bar.

# 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

The screenshot displays the 'Add new battery' configuration page in the meteocontrol interface. The top navigation bar includes 'COCKPIT', 'PV-PLANT', 'POWER CONTROL', 'DEVICES', and 'SYSTEM'. The 'DEVICES' menu is currently selected. On the left sidebar, the 'Batteries' option is highlighted. The main content area shows a 'Device selection' dropdown menu with the following options: ADS-TEC, Delta, INTILION, SMA, and SunSpec Alliance. Below this, there is a section for 'Installed devices' with buttons for 'Edit selected', 'Delete selected', and 'Download Events', along with a search bar.

# 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

The screenshot displays the Meteocontrol web interface. At the top, there is a navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL, DEVICES (selected), and SYSTEM. On the right side of the navigation bar are buttons for WIZARD and LOG OUT. A sidebar on the left contains a list of menu items: Inverters, Sensors, Meters, String monitoring, Status DI internal, Status DI external, Digital output, Tracker, Batteries, Genset, Power plant controller (highlighted), and Modbus configurator. The main content area is titled 'Add new power plant controller'. It features an information icon and a message: 'The power plant controller of the blueLog XC is automatically added after activating power control. If an external controller is used and the data is required in monitoring, it must be configured here.' Below this message is a 'Device selection' section with two dropdown menus: 'All vendors' and 'Series'. At the bottom of the form, there is a 'Show details' dropdown and a 'Start scan' button.

# 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

The screenshot displays the 'Modbus Configurator' interface. On the left, a sidebar menu lists various device categories: Inverters, Sensors, Meters, String monitoring, Status DI internal, Status DI external, Digital output, Tracker, Batteries, Genset, Power plant controller, and Modbus configurator (which is currently selected). The main content area is titled 'Configured Modbus profile' and features two primary actions: 'New Modbus profile' and 'Import Modbus profile'. Below these actions is a table with the following structure:

Driver name	Device category	Last change	Actions

Below the table, the 'Create / edit new Modbus profile' section is active. It includes a 'Basic settings' tab with the following fields:

- Driver name:
- Device category:

The 'Advanced settings' section includes:

- Data points per request:
- Number of registers per request:

# ***blue'Log<sup>®</sup> 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

The screenshot displays the 'POWER CONTROL' interface. It features a navigation bar with 'COCKPIT', 'PV-PLANT', 'POWER CONTROL', 'DEVICES', and 'SYSTEM'. On the right, there are buttons for 'WIZARD' and 'LOG OUT'. A left sidebar contains menu items: 'Operating data', 'Active power', 'Reactive power', and 'Report'. The main content area is divided into three sections:

### P controller operation

Setpoint value	100.000 % / 1,000.000 kW
Actual value	-- % / -- kW
Correction value	100.000 %
Source	$P_{var, fix}$
Operation mode	Normal operation

### Q controller operation

Setpoint value	0.000 % / 0,000 kvar
Actual value	-- % / -- kvar
Correction value	0.000 %
Source	$Q_{var, fix}$
Operation mode	Normal operation

### Measured values at point of common coupling

Active power P	-- kW	Current $I_{PhA}$	-- A	Voltage $V_{PhA-PhB}$	-- V
Reactive power Q	-- kvar	Current $I_{PhB}$	-- A	Voltage $V_{PhB-PhC}$	-- V
Power factor PF	--	Current $I_{PhC}$	-- A	Voltage $V_{PhC-PhA}$	-- V
Apparent power S	-- kVA				
Frequency f	-- Hz				
Active power $P_{PhAN}$	-- kW				

# 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

The screenshot displays the 'POWER CONTROL' interface. The top navigation bar includes 'COCKPIT', 'PV-PLANT', 'POWER CONTROL' (active), 'DEVICES', and 'SYSTEM'. On the right, there are 'WIZARD' and 'LOG OUT' buttons. The main content area is divided into three sections:

- Operating data:** A sidebar menu with options: 'Active power', 'Reactive power', and 'Report'.
- Controller operation:** A section titled 'Controller operation' with a sub-section 'Operating mode' containing three radio button options: 'Standalone' (selected), 'Master', and 'Slave'.
- Plant data:** A section titled 'Plant data' containing several data points:
  - Agreed connected active power  $P_{dV}$ : 1,000 kW
  - Agreed supply voltage  $V_c$ : kv
  - Agreed connected apparent power  $S_{dV}$ : 1,000 kVA
  - Nominal system frequency  $f_n$ : 50 Hz
  - Choose feed-in-meter: Janitza UMG 604 70014599

Below the plant data, there is an 'Advanced plant data' section with two rows, each showing 'No sensor configured' and a gear icon for settings.

# Power Control

## Active power

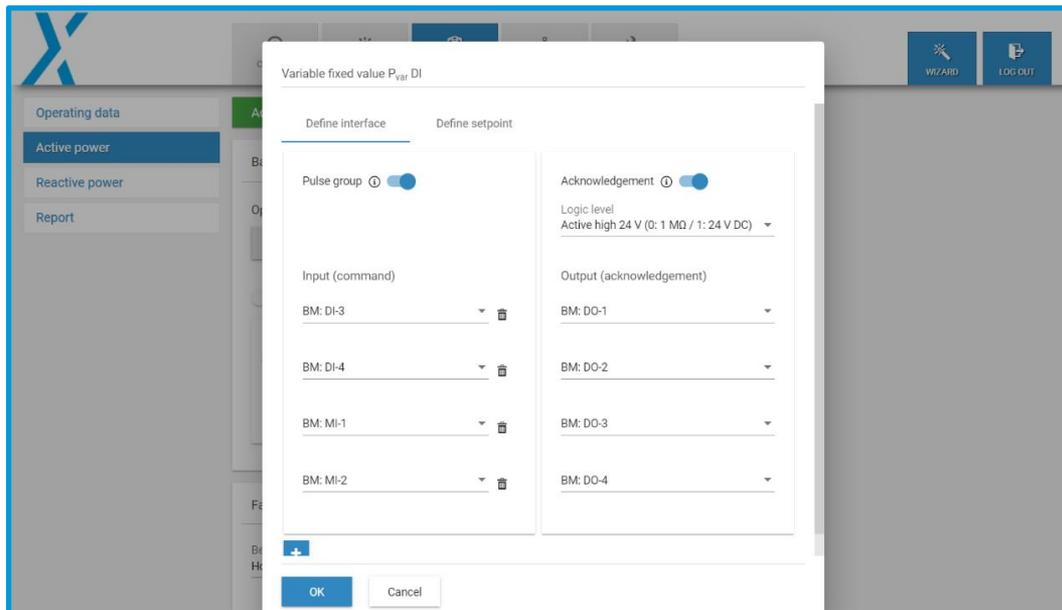
- Remote Power Control (RPC)
- Click the button in the upper right corner to go to the advanced settings
- Under "Options" the direct marketing interface "RPC" is activated
- "OPEN LOOP" with pure active power reduction, systems with full feed-in
- "CLOSED LOOP" for self-consumption systems, necessary 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
- 

The screenshot displays the 'POWER CONTROL' interface. At the top, there is a navigation bar with icons for COCKPIT, PV-PLANT, POWER CONTROL (selected), DEVICES, and SYSTEM. On the right, there are buttons for WIZARD and LOG OUT. The main content area is titled 'Active power control' and shows a status of 'active' with a 'deactivate' button. The interface is divided into sections: 'Basic settings' (with a settings icon), 'Operation mode' (with 'CLOSED-LOOP' and 'OPEN-LOOP' buttons), 'Method switch' (with a toggle), 'Setpoint command method' (with a text input field), and 'Variable fixed value  $P_{var, fix}$ ' (with a dropdown menu and a settings icon). Below this is the 'Fail-safe operation' section, which includes 'Behaviour in event of error' (with a dropdown menu) and 'Waiting time' (set to 60 seconds).

# 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"
- 

The screenshot displays the 'POWER CONTROL' section of the meteocontrol interface. The main content area is titled 'Reactive power control' and is currently set to 'active'. The interface includes a navigation menu on the left with options: 'Operating data', 'Active power', 'Reactive power' (selected), and 'Report'. The main settings area is divided into sections: 'Basic settings' (with a gear icon and info icon), 'Operation mode' (with 'CLOSED-LOOP' and 'OPEN-LOOP' buttons), 'Method switch' (with a toggle), 'Setpoint command method' (with a text input field), and 'Variable fixed value  $Q_{var\ fix}$ ' (with a dropdown menu and gear icon). The 'Fail-safe operation' section includes 'Behaviour in event of error' (with a dropdown menu) and 'Waiting time' (set to 60 seconds).

# 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)

The screenshot shows a software interface for configuring the reactive power control. A dialog box titled "Characteristic curve cos φ (P)" is open, displaying a table of support points and a graphical representation of the curve.

point	x: P/P <sub>AV</sub>	y: cos φ setpoint (U)	excitation
P <sub>1</sub> (x <sub>1</sub> ; y <sub>1</sub> )	0.5	1	
P <sub>2</sub> (x <sub>2</sub> ; y <sub>2</sub> )	1	0.9	Underexcited / Cap. feed-in / Ind. sou... ▼

The graphical assistance section shows a plot of cos φ versus P/P<sub>AV</sub>. The y-axis ranges from 0.9 to 0.9, and the x-axis ranges from 0.5 to 1. A red line connects the two points P<sub>1</sub> (0.5, 1) and P<sub>2</sub> (1, 0.9). The plot also shows a vertical line at P/P<sub>AV</sub> = 0.5 and a horizontal line at cos φ = 0.9.

Buttons: OK, Cancel

# 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

The screenshot shows the 'POWER CONTROL' section of the Meteocontrol interface. The top navigation bar includes 'DOCKPIT', 'PV-PLANT', 'POWER CONTROL' (selected), 'DEVICES', and 'SYSTEM'. On the right, there are 'WIZARD' and 'LOG OUT' buttons. A left sidebar contains 'Operating data', 'Active power', 'Reactive power', and 'Report' (selected). The main content area is titled 'Setting report' and features an information box with the text: 'Here you can download all current settings you have configured for the Power Control on the data logger as an automatically generated pdf report and use it as verification for your grid operator and plant certifier if required.' Below this box is a 'Create report' button.

# 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.

The screenshot displays the 'POWER CONTROL' menu with the following data:

P controller operation	
Setpoint value	100.000 % / 15,000.000 kW
Actual value	96.940 % / 13,040.942 kW
Source	P <sub>max</sub> fix
Operating status	Normal operation
	Battery      PV
Correction value	74.491 %      100.000 %
	3,724,550.000 kW      10,000,000.000 kW
Sum of inverters	9,349,334.000 kW      3,688,392.000 kW
State of charge	44.140 %

Q controller operation	
Setpoint value	0.000 % / 0.000 kvar
Actual value	0.000 % / 0.000 kvar
Source	Q <sub>max</sub> fix
Operating status	Normal operation
	Battery      PV
Correction value	0.000 %      0.000 %
	0.000 kvar      0.000 kvar
Sum of inverters	0.000 kW      0.000 kW

Measured values at point of common coupling			
Active power P	13,040.942 kW	Current I <sub>PhA</sub>	0.001 A
Reactive power Q	0.000 kvar	Current I <sub>PhB</sub>	0.001 A
Power factor PF	1.000	Current I <sub>PhC</sub>	0.001 A
Apparent power S	326,023,551,909.888 kVA	Voltage V <sub>PhsA</sub>	397.043 V
Frequency f	50.003 Hz	Voltage V <sub>PhsB</sub>	397.043 V
		Voltage V <sub>PhsC</sub>	397.043 V
		Active power P <sub>PhsA</sub>	-- kW
		Active power P <sub>PhB</sub>	-- kW
		Active power P <sub>PhC</sub>	-- kW

# ***blue'Log<sup>®</sup> 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

The screenshot shows a web-based control interface for a PV system. The top navigation bar includes a large 'X' logo on the left and several menu items: COCKPIT, PV-PLANT (highlighted in blue), POWER CONTROL, DEVICES, and SYSTEM. On the far right of the navigation bar are buttons for WIZARD and LOG OUT. A left-hand sidebar contains a list of menu items: Basic data, VCOM, SFTP / FTP push, SCADA interface, Alarm / State configuration, and Power display. The main content area displays the 'PV-Plant settings' page, which contains a table of configuration parameters:

PV-Plant settings	
VCOM	<a href="#">Change Value</a>
SFTP / FTP push	Inactive
Transmission interval	5 min.
Alarm monitoring	Active

# PV system

## Reference data

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

The screenshot displays the 'blue'Log' web interface. At the top, there is a navigation bar with a large 'X' logo on the left and several menu items: COCKPIT, PV PLANT (highlighted in blue), POWER CONTROL, DEVICES, and SYSTEM. On the far right of the navigation bar are 'WIZARD' and 'LOG OUT' buttons. Below the navigation bar is a sidebar menu with the following items: Basic data (highlighted in blue), VCOM, SFTP / FTP push, SCADA interface, Alarm / State configuration, and Power display. The main content area shows the configuration for the 'Data logger'. It includes a 'Data logger' label, a 'Model' field with the value 'XC-100000', and a 'Serial number' field with the value '798108 3919 0090'. Below these fields is a section for the 'Name of data logger', which contains a text input field and a 'Save' button.

# 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

The screenshot shows the VCOM configuration page in the meteocontrol interface. The top navigation bar includes 'COCKPIT', 'PV PLANT' (selected), 'POWER CONTROL', 'DEVICES', and 'SYSTEM'. On the right, there are 'WIZARD' and 'LOG OUT' buttons. A left sidebar contains a menu with 'Basic data', 'VCOM' (selected), 'SFTP / FTP push', 'SCADA interface', 'Alarm / State configuration', and 'Power display'. The main content area is divided into three sections:

- Registration:** Shows a success message 'Connection test to VCOM was successful ✓'. It includes input fields for 'Plant name' and 'Plant key'. At the bottom are 'Cancel registration' (red) and 'Check connection' (blue) buttons.
- Automatic transmission:** Features a dropdown menu for 'Transmission interval' currently set to '5 min.', with a 'Save' button below it.
- Historical data:** A section header at the bottom of the main area.

# 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
- 

The screenshot shows the 'PV PLANT' configuration page in the meteocontrol interface. The left sidebar contains a menu with options: Basic data, VCOM, SFTP / FTP push (selected), SCADA interface, Alarm / State configuration, and Power display. The main content area is titled 'Settings' and includes a 'Push service' toggle switch which is turned on. Below this, it states 'VCOM / SFTP / FTP push transmission interval 5 min.'. The 'Protocol' is set to 'FTP' and the 'Server' field is empty. The 'Port' is set to '21'. The 'Upload directory' field is empty with a help icon. The 'Username' and 'Password' fields are also empty, with the password field having a visibility toggle. A 'Save' button is located at the bottom right of the settings area.

# PV system

## SCADA Interface

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

The screenshot displays the SCADA interface configuration page. The navigation menu on the left includes: Basic data, VCOM, SFTP / FTP push, **SCADA interface**, Alarm / State configuration, and Power display. The main content area is divided into three sections:

- SCADA settings:** A toggle switch for "Use SCADA interface" is currently turned on.
- Interface information:**
  - Modbus IP address: 192.168.71.108
  - Port (Devices): 502
  - Port (Tracker): 503
- Configure SCADA addresses:** A table with tabs for "Devices" and "Tracker". The "Devices" tab is active, showing a table with columns: Device name, Interface, Address, Model, Serial number, SCADA address, and Device type. The table contains three rows of data.

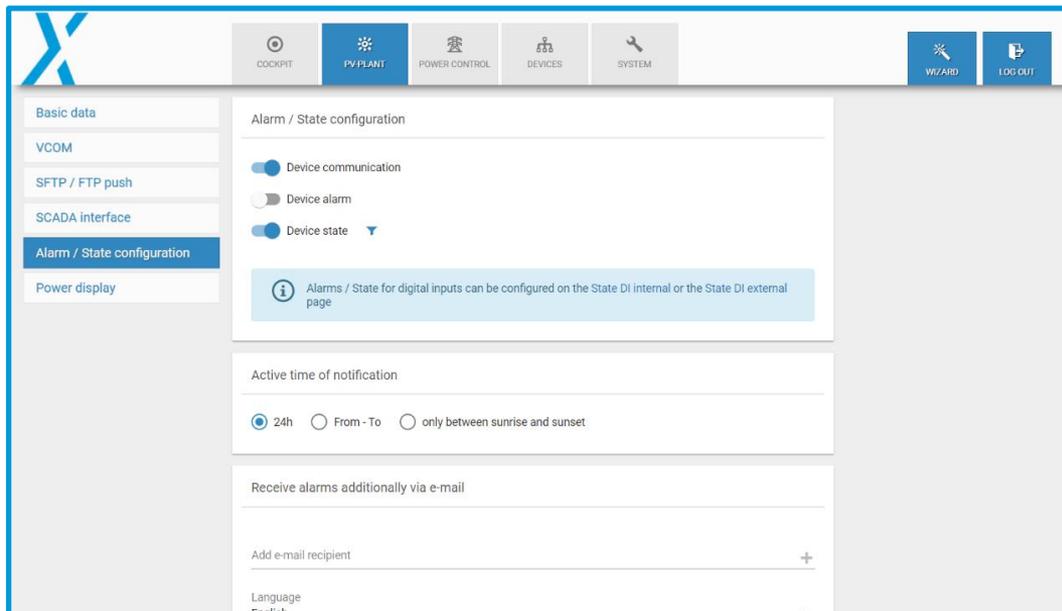
Device name	Interface	Address	Model	Serial number	SCADA address	Device type
status	BM-DI-2	---	State Input		99	Status
Huawei ...020001	192.168.71.101:502	1	SUN2000-17KTL	2101072...020001	100	Inverter
Huawei ...020002	192.168.71.101:502	2	SUN2000-15KTL	2101072...020002	101	Inverter

# 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

The screenshot shows a web-based configuration interface for a PV system. At the top, there is a navigation bar with icons for COCKPIT, PV PLANT (selected), POWER CONTROL, DEVICES, and SYSTEM. On the right side of the navigation bar are buttons for WIZARD and LOG OUT. A large blue 'X' logo is visible in the top left corner of the interface.

The main content area is divided into two sections:

- Power display - cockpit:** This section contains two configuration fields:
  - Data source:** A dropdown menu currently set to "Inverter sum (blue'Log)".
  - Full scale feed-in:** A text input field containing "1,000" with the unit "kW" to its right.
 A "Save" button is located at the bottom right of this section.
- Power display - external device:** This section contains three configuration fields:
  - Data source:** A dropdown menu.
  - Pulses pro kWh:** A text input field with a "0" icon to its right.
  - Digital output S0-interface:** A dropdown menu.

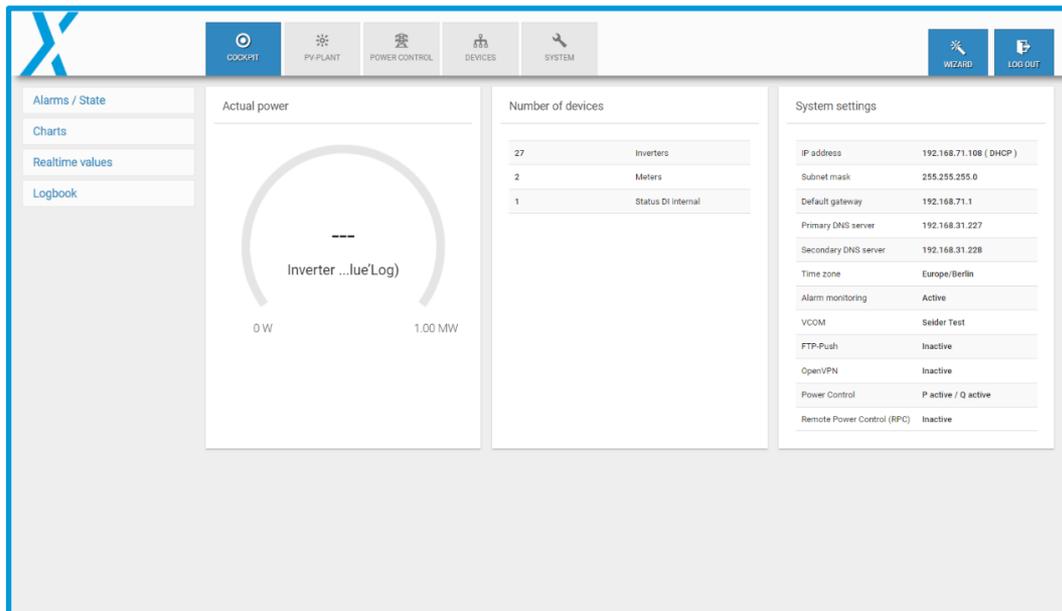
On the left side of the interface, there is a sidebar menu with the following items: Basic data, VCOM, SFTP / FTP push, SCADA interface, Alarm / State configuration, and Power display (which is highlighted in blue).

# ***blue'Log<sup>®</sup> 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

The screenshot shows the 'Alarms / State' interface in the Cockpit application. The interface includes a navigation menu on the left with options like 'Alarms / State', 'Charts', 'Realtime values', and 'Logbook'. The main content area displays a date range filter (From: 16 March 2023, To: 16 March 2023) and buttons for 'Load' and 'Download'. There are also toggle switches for 'Additional display of State of devices' and 'Resolved alarms / states'. Below this, a table lists the alarms. One entry is shown:

Error code	Error message	Device name	Interface	Address	Start	Stop	Duration	State
NOCOMM_TCP	Communication failure (TCP)	Janitza_014599	192.168.71.107.502 1		2023/03/16 2:19:01 PM		00:47:15	Active



# 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.

The screenshot shows the 'Realtime values' section of the Cockpit interface. It features a table with the following data:

Device name	Reactive power	Power factor (cos phi)	Telegrams transmitted	Temperature	Voltage AC phase 3
Huawei ...020000	0 var	0.992 overexcited	310	-19.9 °C	228.07 V
Huawei ...020002	0 var	0.992 overexcited	320	-19.9 °C	228.07 V
Huawei ...020004	0 var	0.992 overexcited	320	-19.9 °C	228.07 V

# Cockpit

## Logbook

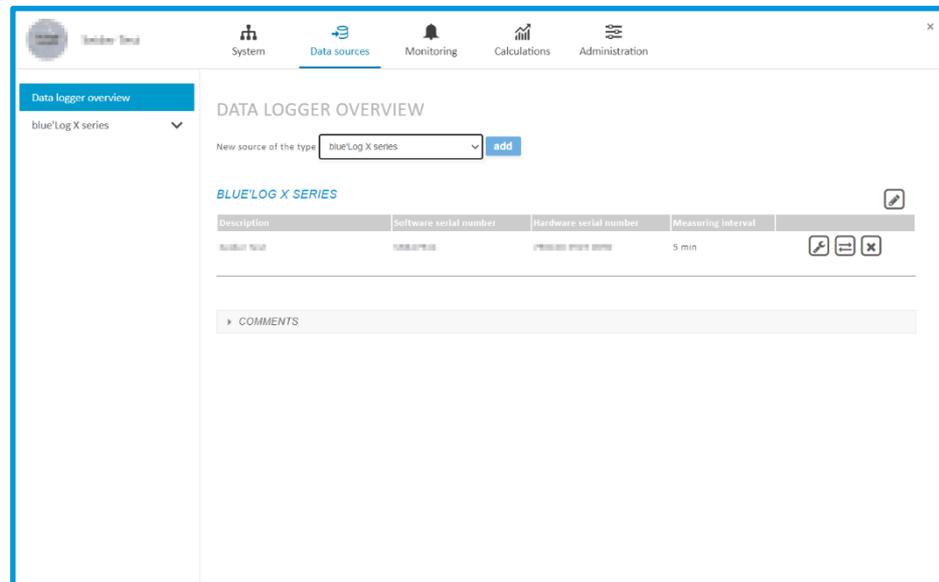
- Changes and events from the past can be listed in the "Logbook"
- The records can be selected according to the time period

The screenshot displays the Cockpit Logbook interface. On the left, a sidebar contains navigation options: Alarms / State, Charts, Realtime values, and Logbook (which is selected). The main area is titled 'System events' and includes a date range selector for '16 March 2023' and a 'Load' button. Below this, it indicates '13 entries found' and provides a search bar. A table lists the system events with columns for Time, Error type, User, and Description.

Time	Error type	User	Description
2023/03/16 2:52:09 PM	Information	s.seider	Power Control: Deleted key "REACTIVE_POWER_UL_CURVE_0"
2023/03/16 2:52:08 PM	Information	s.seider	Power Control: Updated key "0"
2023/03/16 2:52:07 PM	Information	s.seider	Power Control: Added key "REACTIVE_POWER_FIX_VALUE_0"
2023/03/16 2:52:07 PM	Information	s.seider	Power Control: Updated key "0"
2023/03/16 2:51:37 PM	Information	s.seider	Power Control: Updated key "0"
2023/03/16 2:20:37 PM	Information	system	VCOM: Export to VCOM succeeded.
2023/03/16 2:17:53 PM	Information	system	VCOM: Last changes from system at 2023-03-16T13:15:26Z saved to cloud
2023/03/16 2:17:53 PM	Information	system	VCOM: AUTOMATIC backup saved to cloud
2023/03/16 2:15:29 PM	Information	system	VCOM: Connection to VCOM reestablished.
2023/03/16 2:15:28 PM	Information	mc-root	Restore: Restore configuration from CLOUD_BACKUP
2023/03/16 2:15:28 PM	Information	mc-root	Reset: System has been restored to factory settings and logbook has been cleaned.
2023/03/16 2:15:28 PM	Information	system	Reboot: System in operation.
2023/03/16 2:15:26 PM	Information	system	Plant: Support access enabled

# 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



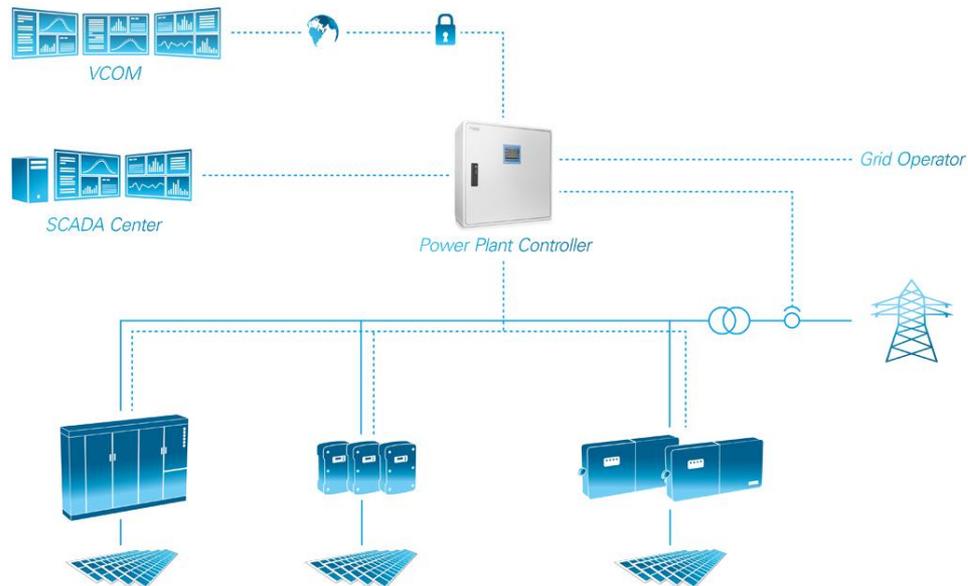
# *PPC*

*Explanation of Power Plant Controller functions*

# PPC

## Properties

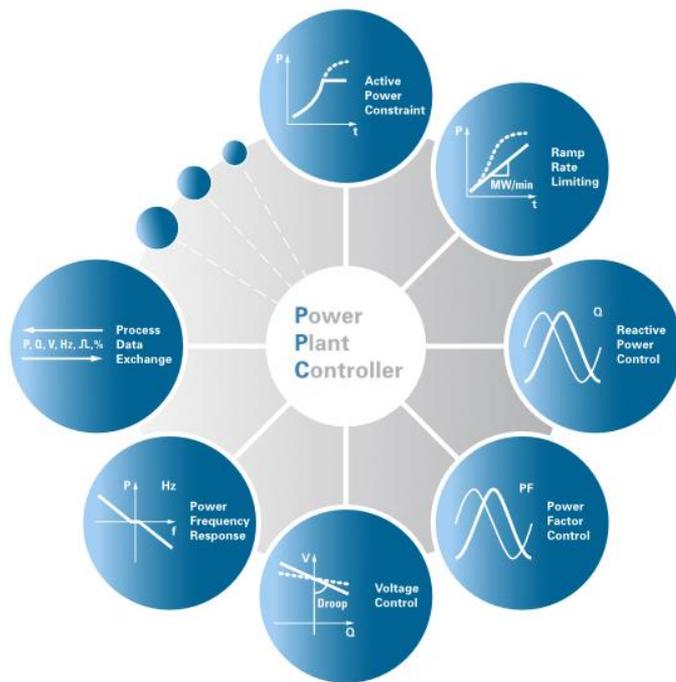
- Precise control of active and reactive power as well as voltage at the mains connection point
- Integrated solutions for mixed parks through manufacturer independence
- Protocols IEC 60870-5-101/-104, IEC 61850, DNP3, Modbus
- Graphical user interface to support commissioning



# 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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