88-control
ALLIANCE

USER MANUAL

ENERGY MANAGER EM300

100%
MONITORING
MEASURED DATA
IN REAL TIME

ENERGY MANAGER EM300

100%
A MODERN SOLUTION
PERFECTLY COORDINATED

100%
MONITORING
MEASURED DATA IN REAL TIME

60%
OF ENGINEERING SAVED
BY USING AN EFFICIENT TOOL

Contents

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1 INTRODUCTION

1.1 NOTES ON USER MANUAL

The following information is applicable to the B-control Energy Manager EM300 L / EM300 LR / EM300 LRW.

- Please read the user manual fully before setting up the Energy Manager to avoid possible risks and mistakes.
- Observe all warnings.
- Follow the safety instructions given in section 2 on page 9.

1.2 DESCRIPTION

The B-control EM300 can be used in an industrial environment as well as in buildings. The device records and saves the following measured values:

- Active power
- Reactive power
- Apparent power
- Active energy (electrical work)
- Reactive energy
- Apparent energy
- Sum of all phases and individual phases
- Phase voltages
- Phase currents
- Power factor

An integrated web server and a memory with a capacity of 4 GB will fulfil your requirements for a distributed database concept. The data is automatically transferred to the software via Modbus-TCP and Modbus-RTU in slave and/or master operation. However, they are also available on the device at all times. Analysis programs can be easily integrated using the Modbus TCP interface. Other operating modes can be selected by setting parameters. For example, the data may also

be saved as a CSV file, which can then be sent to a mail receiver or file server at a set time.

Up to 63 A can be measured directly for each external conductor. External transformers are used for higher currents. Nominal currents of 100, 150, 250 or even 500 A are typical. The current transformers require a conversion ratio of nominal current divided by 5 A.

The excellent measuring accuracy and the extremely compact built-in memory make the B-control Energy Manager a professional measuring technology solution.

In addition, up to 96 current sensors can be connected directly to the RS-485 interface. Up to 63 A can also be measured directly by the current sensors. This topology makes it easy to install measuring systems on DIN rails in distributor boxes. If there are current sensors connected via the RS-485 interface, Modbus communication can take place via the Ethernet port (Modbus-TCP).

The feed into the grid (from a PV system, for example) can also be measured and displayed.

The Energy Manager EM300 is available in the following versions:

- **EM300 L: LAN interface**
- **EM300 LR: LAN and RS-485 interface**
- **EM300 LRW: LAN, WiFi and RS-485 interface**

1.3 INTENDED USE

The Energy Manager is a measuring device that identifies electrical measured values at the connection point and makes them available via LAN, WiFi or RS-485.

This product is NOT an active electrical energy meter as defined in EU Directive 2004/22/EC (MID). It may only be used for internal calculation purposes. The data collected by the Energy Manager via the power generator of your system may differ from the data provided by the main power meter.

The Energy Manager is classified as Overvoltage Category III and may therefore only be used for sub-distribution or power circuit distribution on the consumer side, downstream of the energy meter of the energy supply company.

The Energy Manager is suitable for indoor use only.

The Energy Manager is approved for use in the EU Member States.

Always use the Energy Manager only as described in the documentation provided. Any other use may result in injury or damage to property.

For safety reasons, the product (including the software) must NOT be modified and components must NOT be installed that are not expressly recommended or sold by TQ-Systems GmbH for this product. Any use of the product other than that described as its intended use is considered as improper use. Unauthorised changes, conversions or repairs and opening of the product are prohibited.

The enclosed documentation is part of the product and must be read, followed and then retained in a place that is accessible at all times.

1.4 SUPPORTED PRODUCTS

For information on the supported products and the individual functions of your pre-installed software, go to the B-control Energy Manager product page at www.b-control.com.

2 SAFETY INSTRUCTIONS

WARNING! Danger of death by electric shock.
Live components carry potentially fatal voltages.

- Only use the Energy Manager in a dry environment and keep it away from liquids.
- Only install the Energy Manager in the switch box and ensure that the connections for the external conductors and the neutral conductor are behind a cover or a contact protector.
- Before cleaning, switch off the power to the Energy Manager and only use a dry cloth to clean.
- Maintain the prescribed minimum distances between the network cable and mains voltage installation components or use suitable insulation.

ATTENTION! Avoid damage to or destruction of the Energy Manager.

- Do not connect an ISDN cable to the Energy Manager's network connection.

ATTENTION! Damage to or destruction of the Energy Manager due to overvoltage on the network cable.

- When network cables are used outdoors, overvoltage may be caused by lightning etc.
- If installed outside the building, the network cable must be protected with suitable overvoltage protection.

ATTENTION! Avoid damage to or destruction of the Energy Manager due to improper use.

- Do not operate the Energy Manager outside the specified technical tolerances.

3 TECHNICAL DATA

Interfaces	LAN (10/100 Mbit) WiFi (802.11b/g/n) RS-485 (Half-duplex, max. 115200 baud)
Rated voltage	230/400 V AC
Operating voltage	230 V ± 10 %
Frequency	50 Hz ± 5 %
Internal consumption for entire unit	< 5 W without activated WiFi
Current	Nominal current 5 A, continuous current 63 A, overload 70 A 1 min
Starting current	< 25 mA
Connection cross section	10-25 mm^2 // Mechanical: 1.5-25 mm^2
Torque for screw terminals	2.0 Nm
Weight	0.3 kg
Dimensions	88 mm x 70 mm x 65 mm
Ambient temperature during operation	-25 °C ... +45 °C
Ambient temperature in operation for an input current of max. 32 A	-25 °C ... +55 °C *)
Ambient temperature during transportation / storage	-25 °C ... +70 °C
Relative humidity (non-condensing)	Up to 75 % as an annual average, up to 95 % on up to 30 days/year
Protection class	II
IP code	IP2x

*) The following conditions apply to operation at ambient temperatures up to 55 °C:

- The Energy Manager must not run continuously at ambient temperatures of 55 °C.
- Fuse protection must not exceed 32 A. External current transformers should be used for higher currents.
- The Energy Manager must be connected with cables that are at least 10 mm^2 in cross section and no less than 1 m long.

NOTE

Other technical data on measuring accuracy, housing or current standards can be found in the technical data sheet of the B-control Energy Manager EM300.
(see download area at www.b-control.com)

4 DELIVERY SCOPE

4.1 ENERGY MANAGER

- 1 x Energy Manager EM300 L or EM300 LR or EM300 LRW with installation instructions
- 1 x RS-485 connector, EM300 LR / EM300 LRW version

4.2 MATERIALS REQUIRED (NOT SUPPLIED AS STANDARD)

- Optional: 1 x network cable
- Optional: 1 x RS-485 cable

Contact the service division of TQ-Systems GmbH if your delivery is incomplete or damaged.

4.3 DELIVERY CONFIGURATIONS

- EM300 L: LAN interface
- EM300 LR: LAN and RS-485 interface
- EM300 LRW: LAN, WiFi and RS-485 interface

5 SOFTWARE CONFIGURATION

The B-control Energy Manager EM300 measures active, reactive and apparent power, active, reactive and apparent energy and the power factor for each phase and in total, as well as the current strength and voltage for each phase and the grid frequency. The feed into the grid (from a PV system, for example) can also be measured and displayed. All measured values are transmitted via Modbus-TCP or Modbus-RTU (without connecting sensors) or JSON-API. A web interface for configuration is available via LAN interface.

6 CONNECTIONS AND CONTROL ELEMENTS

1. Phase L1, L2, L3 outputs
2. LED "Status"
3. LED "Network"
4. LED "Sensor"
5. RESET button
6. WiFi antenna connection
7. LAN connection
8. Phase L1, L2, L3 inputs
9. Neutral conductor input N
10. RS-485 interface for connecting the sensors or transmitting the measured data

7 LED STATUSES

7.1 STATUS LED

- Green lights up: Energy Manager is switched on.
- Green flashing slowly: Energy Manager is starting up.
- Green flashing quickly and steadily: Firmware update is running.
- Green pulsating light (100/400 ms): Acknowledgement of RESET button.
- Red lights up continuously: Indicates a fault.

7.2 NETWORK LED

- Off: No connection.
- Green steady light: LAN connection active.
- Green flashing: Network activity via the LAN connection.

7.3 SENSOR LED

Optional extensions (current sensors) are indicated via the sensor LED.

- Off: No sensor bar connected or sensor bar deactivated in the Modbus settings (see section „11.9 Modbus settings“ on page 37)
- Green flashing: Communicating with the sensor bar

8 INSTALLATION AND CONNECTION PLANS

WARNING! Danger of death by electric shock.
The power distributor carries potentially fatal voltages.

Installation may only be carried out by technicians with the following qualifications:

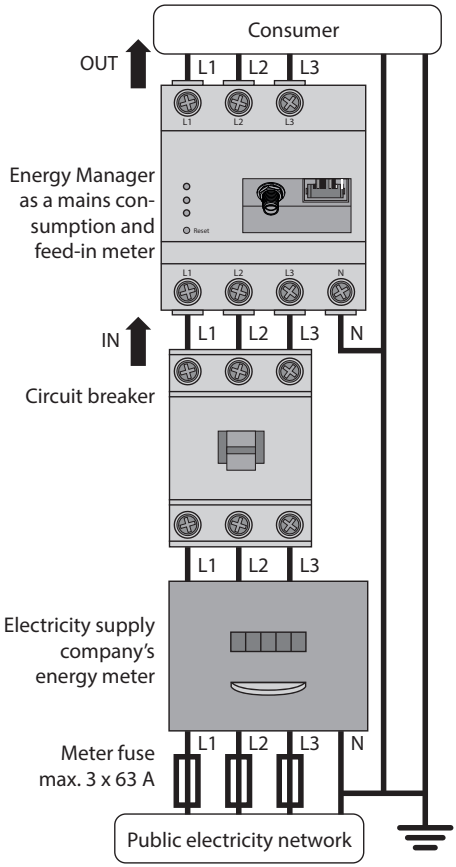
- Licensed specialist company for the installation and commissioning of electrical devices and systems
- Training in electrical hazards and the local safety requirements
- Knowledge of the relevant standards and directives
- Knowledge and observance of this document and all the safety instructions
- Switch off the voltage at the connection and ensure that the power cannot be switched on.
- Make sure that the conductors to be connected to the meter are voltage-free.

8.1 ENERGY MANAGER

All steps required to install the Energy Manager can be found in the Energy Manager installation instructions.

The Energy Manager is supplied with power via outer conductor L1. At least the outer conductor L1 and neutral conductor N need to be connected for the unit to switch on.

It must be ensured that the maximum permitted current of 63 A per phase is not exceeded (by fitting a fuse, for example).



Designation	Explanation
L1, L2, L3	Outer conductor
N	Neutral conductor
OUT	Meter output, consumer side
IN	Meter input, mains side

The end user must be able to isolate the B-control Energy Manager from the power supply by means of a freely accessible meter fuse or an additional circuit-breaker.

8.2 SENSOR BAR

Up to eight sensor bars with a total of up to 96 current sensors can be connected to the Energy Manager via the RS-485 interface.

All steps required to install the sensor bar can be found in the sensor bar installation instructions.

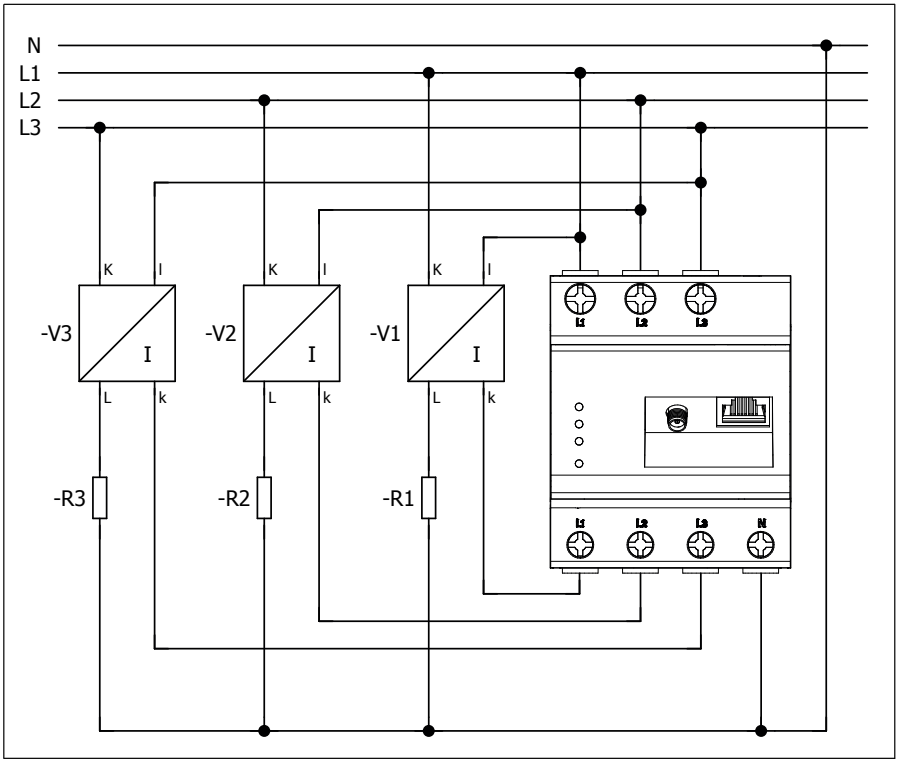
The configuration of the sensor bar on the Energy Manager is described in section „12.12 Sensor settings“ on page 88.

8.3 CURRENT TRANSFORMER

The Energy Manager can measure up to 63 A directly for each outer conductor.

External transformers are used for higher currents. Nominal currents of 100, 150, 250 or even 500 A are typical.

The following diagram shows the connection of current transformers to the Energy Manager.



9 FUNCTIONS OF THE RESET BUTTON

Use the RESET button on the Energy Manager (see section 6 on page 13) to trigger three different interactions on the Energy Manager, as required:

- Restart
- Resetting the network and WiFi settings
- Resetting the individually allocated password.

You can also reset the Energy Manager via the web interface (see section 12.10 on page 83).

9.1 RESTART

Use a pointed object to push in the RESET button for slightly longer than 6 seconds.

The status LED then flashes rapidly red, followed by a brief, steady orange light and then by a green flashing light (approx. 1 x per second). The device now restarts and displays the Home page or log-in screen in the web interface.

9.2 RESETTING THE NETWORK AND WIFI SETTINGS

Use a pointed object to push in the RESET button for between 2 and 6 seconds.

The status LED then flashes rapidly red, followed by a brief, steady orange light and then by a green flashing light (approx. 1 x per second).

The device restarts and displays the Home page or log-in screen in the web interface.

The individual network configurations are now reset to the factory defaults.

PLEASE NOTE

This RESET function using the RESET button corresponds to the "Reset configuration" function in the device's web interface (see section 12.10.1 on page 83).

Some parameters are not reset in the current software version:
· Under device settings: the site setting (see section 12.11 on page 84)
· Under network settings: the time server setting (see section 12.6.3.2 on page 58)

All Modbus settings (see section 12.6.5 from page 60) are NOT reset.

9.3 RESETTING THE PASSWORD TO PROTECT THE WEB INTERFACE

Use a pointed object to push in the RESET button for between 2 and 6 seconds.

The status LED flashes red.

After at least 1 second, but within 10 seconds, press the RESET button again for between 2 and 6 seconds.

The status LED will now flash green for about 15 seconds (100 ms - 400 ms), followed by a brief, steady orange light and then by a green flashing light (approx. 1 x per second).

The device restarts and, when called up in the browser in the web interface, displays the familiar set-up screen. Click on "Next" – you can now set a new password or deactivate the log-in with password.

NOTE on pressing the RESET button for a second time
If you press the RESET button for more than 6 seconds, the Energy Manager will simply restart, without resetting the password. If you press the RESET button a second time within the next 10 seconds, the network and WiFi settings will be reset.

10 SET-UP

10.1 ESTABLISHING A LAN OR WIFI CONNECTION TO THE ENERGY MANAGER

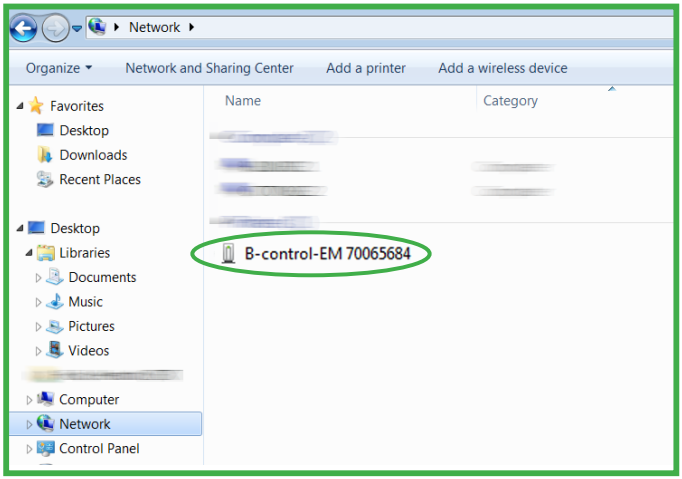
Start by connecting the Energy Manager directly via LAN or WiFi (for the WiFi module version) or integrate it into your network via LAN.

NOTE on set-up

The B-control Energy Manager should only be started up with the web interface in the browser of your PC, laptop or tablet.

NOTE on the Energy Manager's Universal Plug and Play function

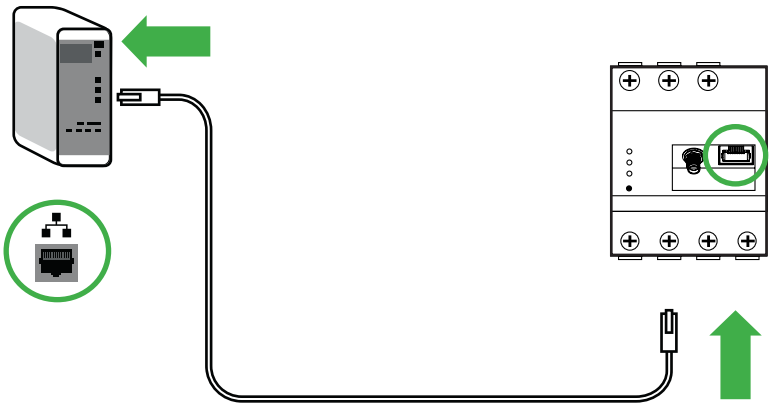
You can find the Energy Manager under My Network Places in Windows using its Universal Plug and Play function. Double-click the device icon with the "B-control-EM ..." label to open the browser with the Energy Manager user interface.



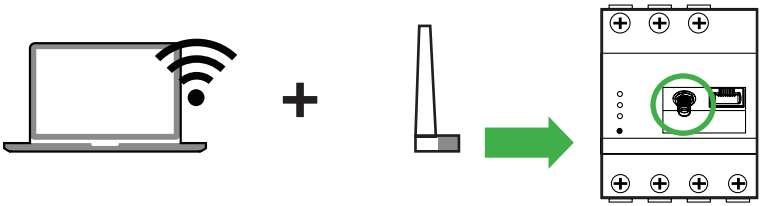
10.1.1 ESTABLISHING A DIRECT LAN CONNECTION TO THE ENERGY MANAGER

1 Connect the plug of the LAN cable to the PC / laptop

2 Connect the LAN plug to the LAN socket of your Energy Manager



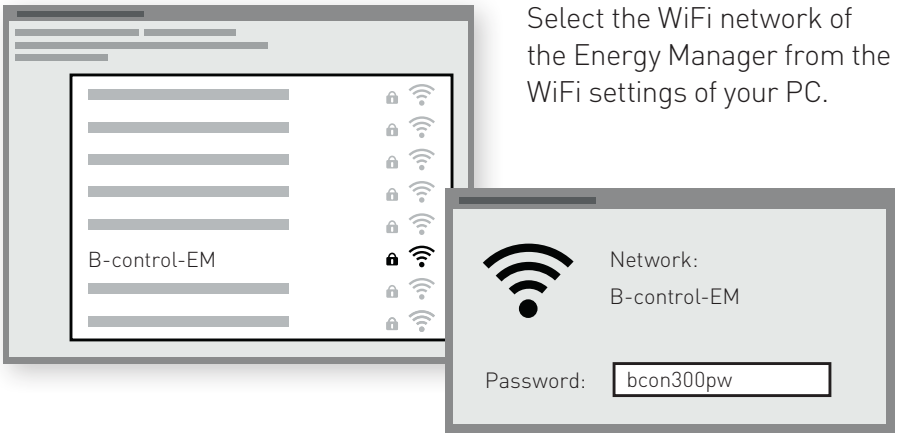
10.1.2 ESTABLISHING A WIFI CONNECTION TO THE ENERGY MANAGER (FOR WIFI VERSION)



Your PC with WiFi
(WiFi must be activated!)

WiFi
antenna

Energy Manager

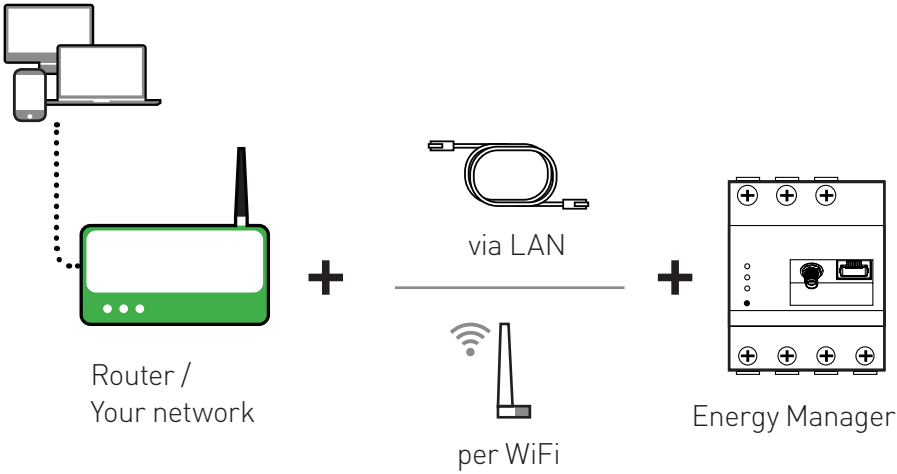


Select the WiFi network of the Energy Manager from the WiFi settings of your PC.

Enter the network key for the Energy Manager: "bcon300pw".

NOTE
The WiFi access point function is activated at the factory which means that you can also connect directly to the Energy Manager via WiFi for setting up.

10.1.3 INTEGRATION OF THE ENERGY MANAGER INTO YOUR EXISTING NETWORK VIA LAN/WIFI



NOTE

You can also connect the Energy Manager to your existing network via WiFi; the settings can be adjusted in the configuration menu during set-up (see section „11.8.3 Connecting to an existing network via WiFi“ on page 36) or even later in the Energy Manager's network settings. In this case the Energy Manager is not operated as a separate access point but as a WiFi client.

10.2 HOW DO I FIND THE WEB INTERFACE FOR THE B-CONTROL ENERGY MANAGER?

Open your browser and enter "http://b-control-em" in the address line of the browser.

If you have connected directly to the Energy Manager's WiFi (see section 10.1.2 on page 23), enter the Energy Manager's static IP address "http://192.168.1.1" in the address line.

If your browser does not find the Energy Manager web interface via the name "b-control-em" or if you have installed several B-control Energy Managers, please use the "B-control finder" – an easy-to-use program developed for the Energy Manager product family which can quickly search for and find the web interface of your Energy Manager.

NOTE
You will find the "B-control finder" program in the download area at www.b-control.com.

10.3 STARTING THE ENERGY MANAGER WEB INTERFACE WITH THE "B-CONTROL FINDER"

The "B-control finder" provides one executable file for Windows and one for Mac OS.

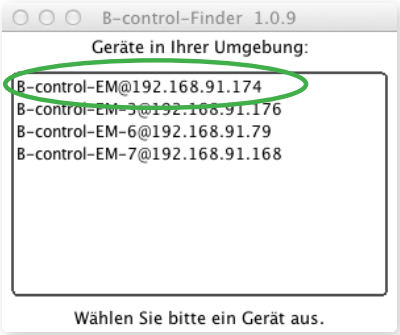
10.3.1 STARTING THE PROGRAM

a) WINDOWS > Run B-control-Finder.exe
b) MAC OS > Run B-control-Finder.jar

Note for users of the Linux operating system
> Carry out the following command in the shell:
java -jar path_to_B-control-Finder,
e.g. java -jar B-control-Finder.jar

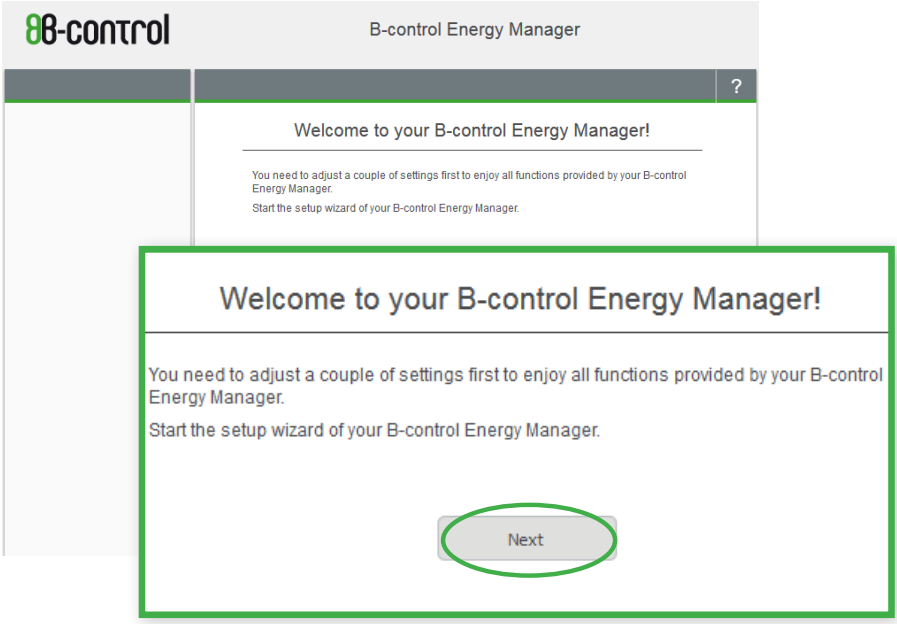
10.3.2 AUTOMATIC CALL-UP OF THE ENERGY MANAGER WEB INTERFACE IN THE BROWSER

The "Finder" opens a small window which, after a brief search, will list your Energy Manager. Click on it – your default browser with the Energy Manager configuration interface will now automatically open.



If several Energy Managers are integrated into your network, the "B-control finder" will list all the devices it has found.

Now click on "Next" in the Energy Manager configuration interface to start the set-up.



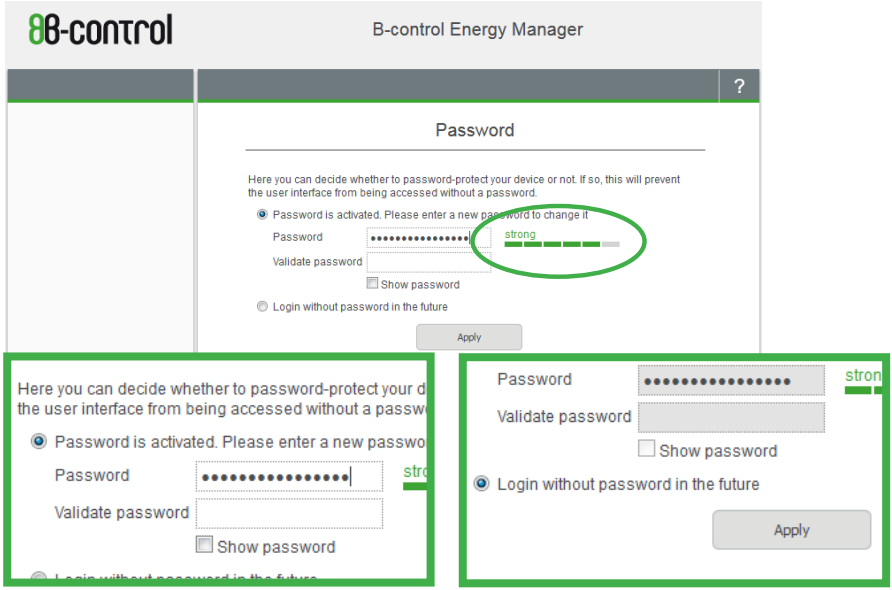
11 CONFIGURATION FOR INITIAL START-UP

11.1 PASSWORD PROTECTION

In order to use all the functions provided by your Energy Manager to their full extent, you first need to adjust some settings. You can later amend all the configurations defined here under "Settings".

On the first "Password" configuration page, you can protect the web interface of your Energy Manager with a password or deactivate the password protection function. The Energy Manager shows the password strength in a bar chart.

Press "Apply" to confirm your settings.

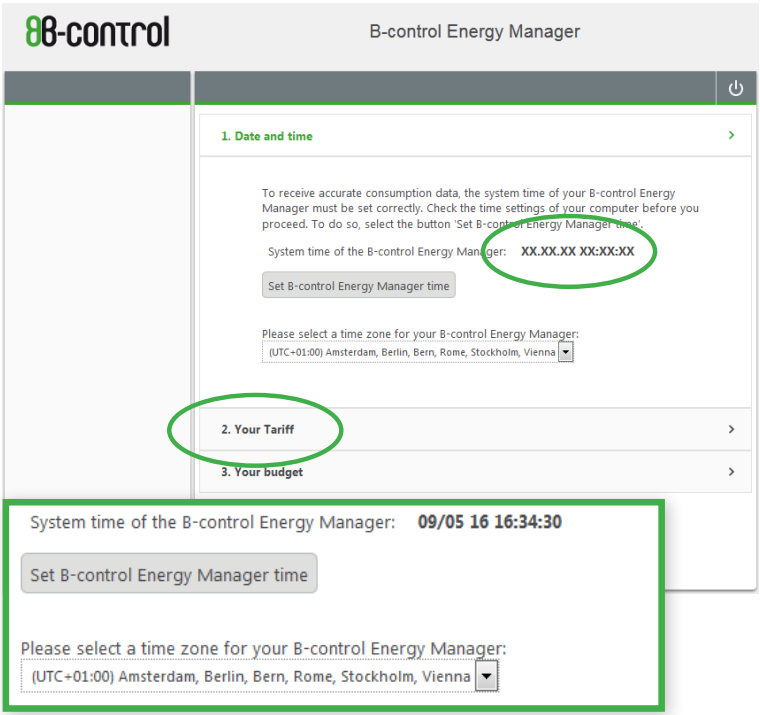


NOTE

If you do not wish to provide your device with a password protection at this stage, you can do so later under "Settings".

11.2 SETTING THE DATE AND TIME

You can set the time of your Energy Manager on the "Date and Time" configuration page. This is necessary in order to be able to record and allocate the correct time to the measured values.

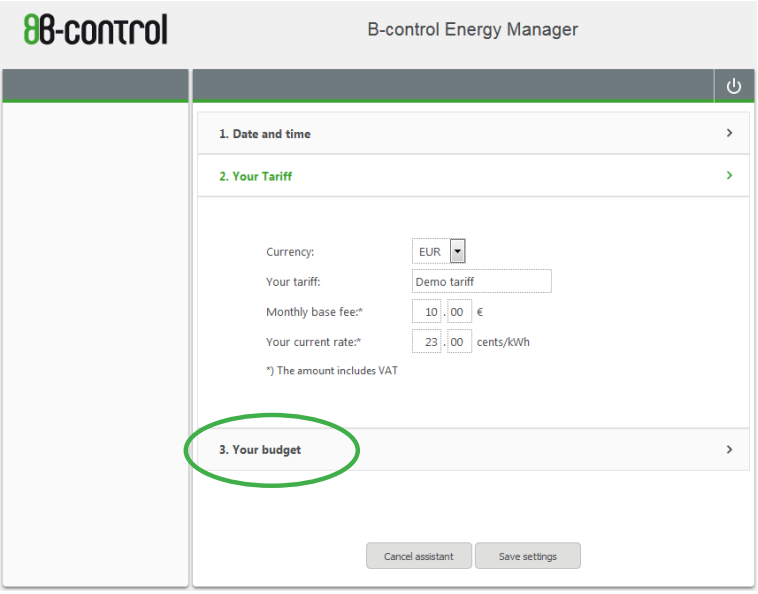


Attention!
Please first check the time of your PC.
The Energy Manager uses the date and time you have set on your PC.

Click on the button "2. Your Tariff". The window with the tariff settings opens.

11.3 SETTING YOUR TARIFF

To allow the Energy Manager to calculate the costs you have incurred based on the power consumption figures, you can set your monthly basic fee and your current rate on the "Your Tariff" configuration page. If your energy supply contract makes provision for an annual basic fee, divide this value by 12 and enter the result in the “monthly basic fee" field, rounded to two decimal places (gross, including VAT).

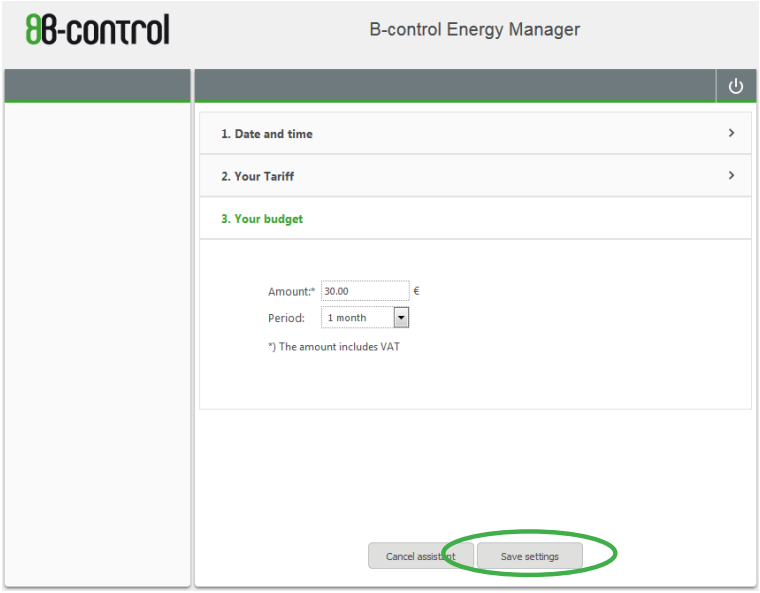


Click on the button "3. Your budget". The screen for entering instalment payments opens.

11.4 ENTERING YOUR INSTALMENT PAYMENTS

You can configure the details for your instalment payments on this set-up page. Enter the instalment amount and the instalment period. Again the instalment price includes VAT.

Based on the amount specified here, the Energy Manager will calculate whether your "energy consumption behaviour" corresponds to your budget, i.e. your monthly instalment payment.



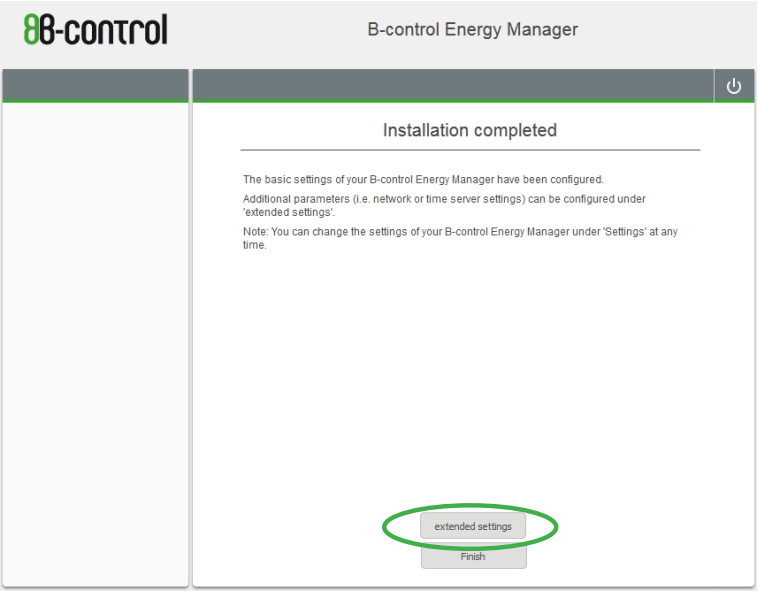
NOTE

(> see section „12.4 Your budget“ on page 51)

Click on the "Save settings" button. The "Installation complete" screen opens.

11.5 EXITING THE INSTALLATION OR MAKING MORE SETTINGS

The basic settings are now complete. You can now terminate the set-up assistant or make further settings, e.g. to integrate the Energy Manager into your network (via a LAN cable or WiFi) or to configure the data transmission via the available interfaces.



NOTE

At this point you can also exit the assistant. The following configurations for the network, WiFi and data transmission via Modbus can also be made later in the settings.

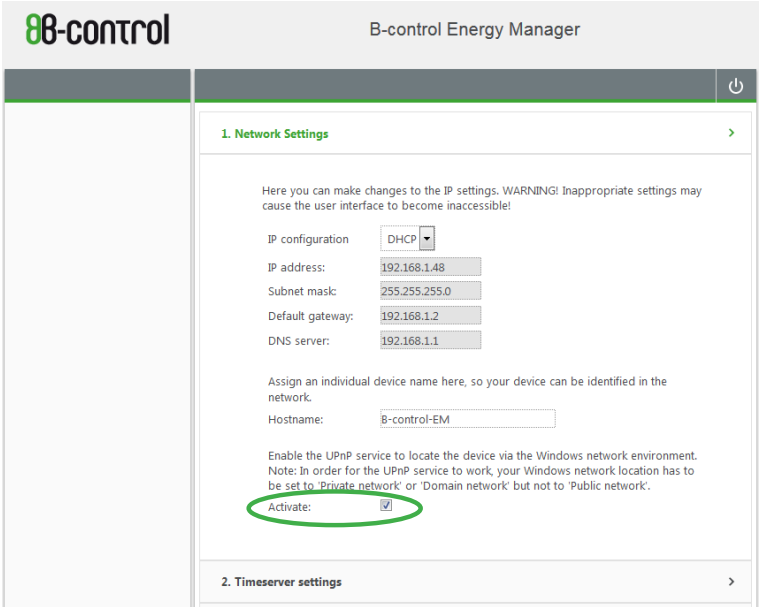
11.6 NETWORK SETTINGS

If you wish, you can now configure the network settings to suit your requirements.

You can assign an individual name to your Energy Manager under which your device will be shown in the network.

You can also assign a static IP address rather than the IP address that the Energy Manager obtains automatically from your router via DHCP.

In the factory defaults, the Universal Plug and Play service is active in the Energy Manager so that the device will be displayed under My Network Places in Windows.

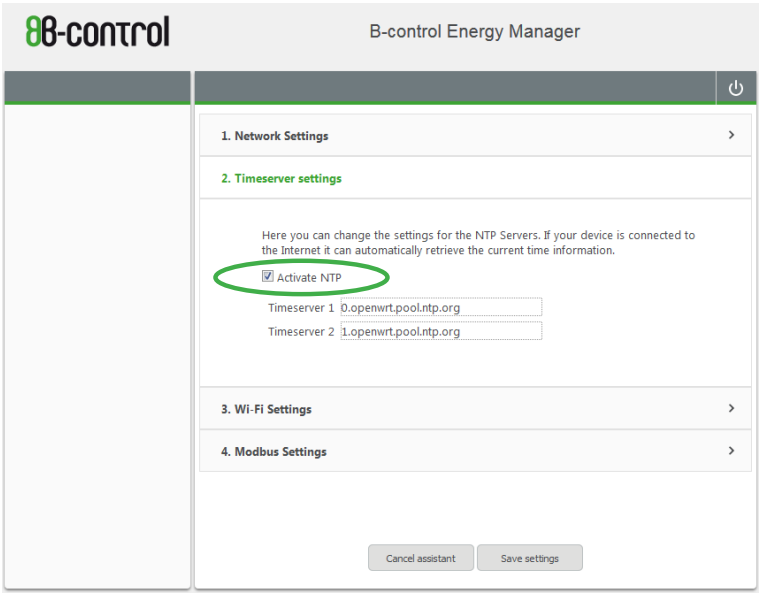


NOTE

You can restore the factory defaults for the network configuration by holding down the RESET button for between 2 seconds and 6 seconds. This will not delete the meter readings in the registers.

11.7 TIME SERVER SETTINGS

This allows you to decide whether the Energy Manager should automatically obtain its time from the network via a server. If your device is permanently connected to the Internet via your network, we recommend activating this option.



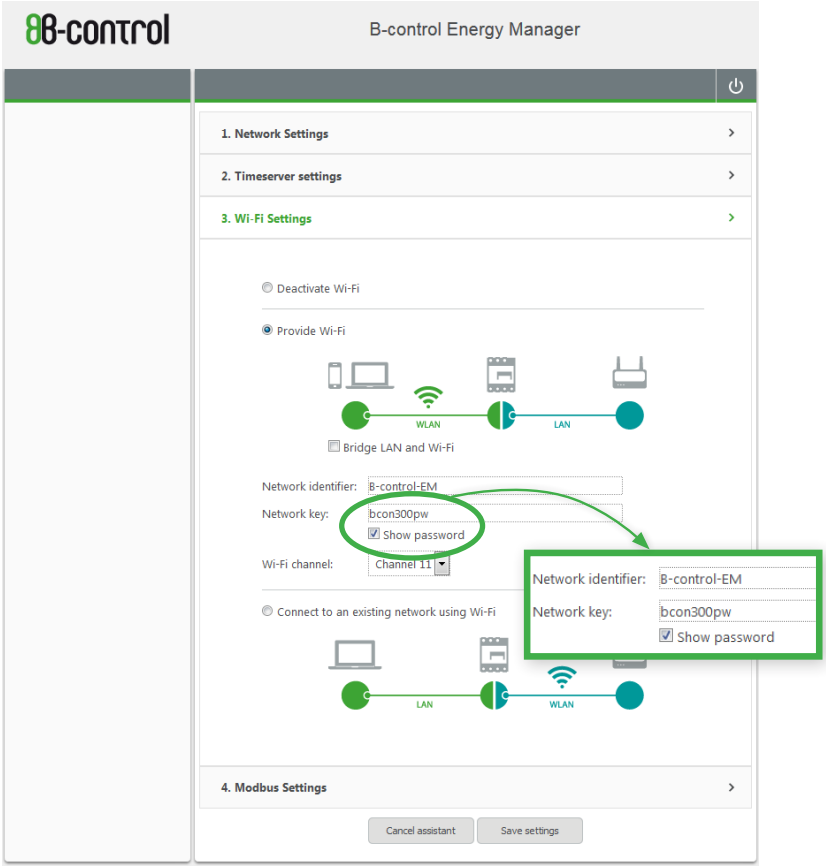
NOTE

If you activate the NTP option by checking the check box, the Energy Manager synchronises with the specified time servers. If you have installed several Energy Managers, this will ensure that all the Energy Managers are synchronised with one another.

11.8 WIFI CONFIGURATION (FOR WIFI VERSION)

This menu is used to configure the WiFi settings. You can activate/deactivate the WiFi and decide whether the Energy Manager should provide its own WiFi network or connect to an available WiFi network.

You will find further details about the WiFi settings in the following sections.



11.8.1 DEACTIVATING THE WIFI

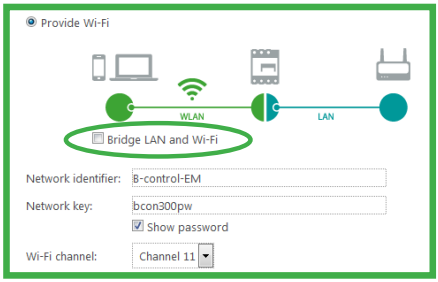
The WiFi of your B-control Energy Manager is deactivated.

Tip
If your B-control Energy Manager's WiFi is not needed, it should be deactivated in order to save energy.

11.8.2 PROVIDING THE WIFI

Your B-control Energy Manager provides a WiFi access point for your mobile devices. You can select the network name, network key and WiFi radio channel. The network key is "bcon300pw" by default.

On the Energy Manager, the IP address is preset to "192.168.1.1". It also provides a DHCP server that assigns the IP address for the devices to be connected.



If you want to access the devices connected on the home network, such as printers, scanners, TVs, etc., via the Energy Manager's WiFi access point, you will need to activate the "Bridge LAN and WiFi" option and also connect the B-control Energy Manager to your router using a network cable.

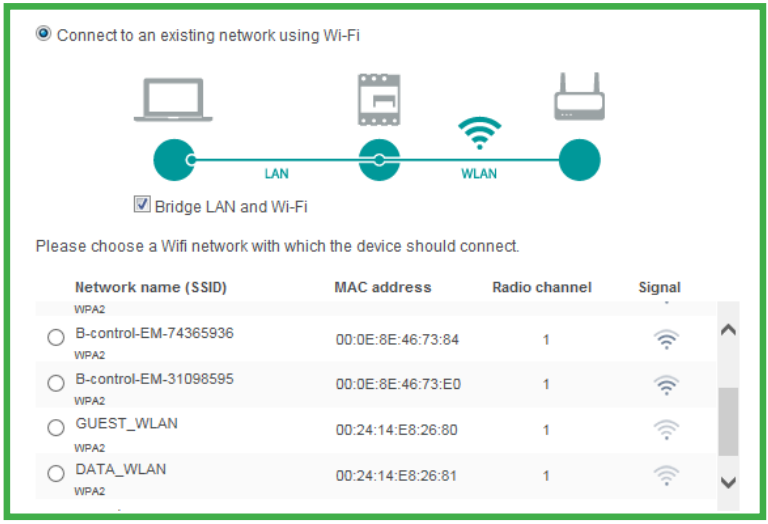
NOTE
If the "Bridge LAN and WiFi" option is activated, the Energy Manager's DHCP server is automatically deactivated so as not to affect any connected networks.

NOTE
The WiFi access point function is activated at the factory which means that you can also connect directly to the Energy Manager via WiFi for setting up.

11.8.3 CONNECTING TO AN EXISTING NETWORK VIA WIFI

If your Energy Manager is equipped with a WiFi module, you can also connect it to your WiFi router by entering the network key of your router. The Energy Manager will usually log into the network with the host name "B-control-EM".

NOTE
To be able to set up this mode, there must be a LAN connection between your B-control Energy Manager and your PC until the configuration is complete.



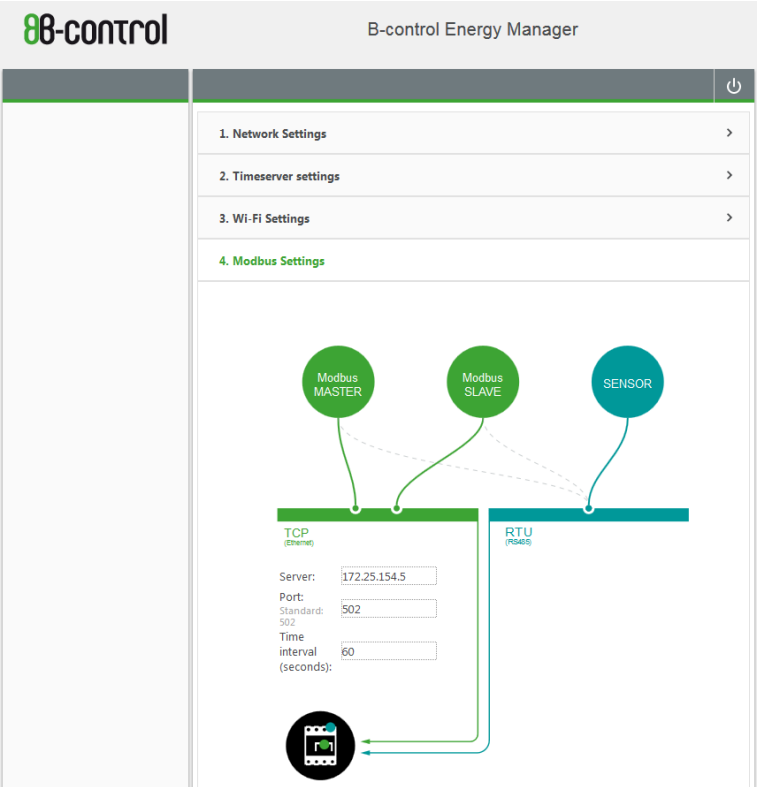
The "Bridge LAN and WiFi" option allows you to access the WiFi devices via the Energy Manager's LAN interface.

NOTE
If the "Bridge LAN and WiFi" option is activated, the Energy Manager's DHCP server is automatically deactivated so as not to affect any connected networks.

11.9 MODBUS SETTINGS

You can configure data transmission via the Modbus interface during the set-up process.

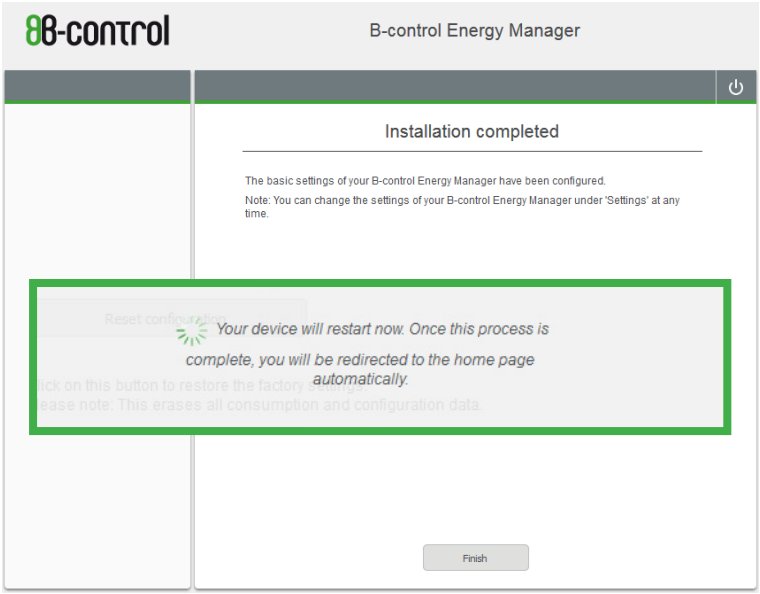
However, you can also stop the installation at this point and leave these settings for later, entering them in the configuration menu under "Modbus settings" (see section 12.6.5 on page 60).



11.10 FINISHED! – COMPLETING THE SET-UP PROCESS

Use these last settings to complete the set-up process.

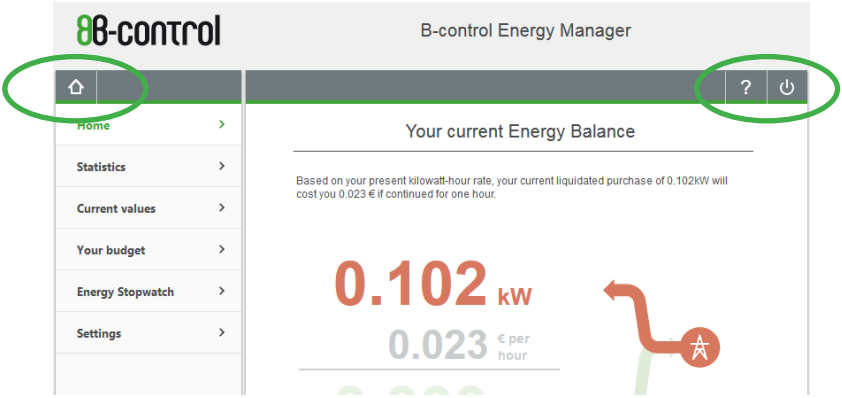
Click on "Finish" – your Energy Manager will now restart.



12 WEB INTERFACE OF THE ENERGY MANAGER

The web interface has all the functions of the Energy Manager. You can view and export the consumption and feed-in values, view statistics and further adapt the Energy Manager to your requirements using the extensive setting options and much more.

Once you have successfully logged into the Energy Manager (see section 10.2 from page 25), the Home screen appears.



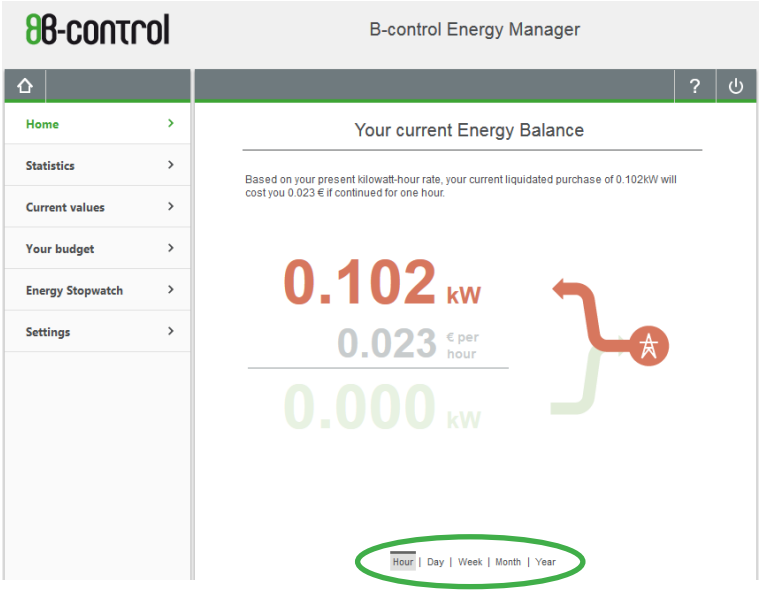
Each menu contains a bar with the following three buttons:

	Click this button to return to the Home menu from any menu level.
	Click this button to view context-sensitive help text for the selected menu.
	Click this button to log out of the Energy Manager.

12.1 HOME

Your Energy Manager's Home menu provides an overview of how much power you are currently consuming (red) or whether you are feeding in power, minus your internal consumption (green).

The power consumption costs can be converted to the intervals "Hour", "Day", "Week", "Month" or "Year" using the buttons at the bottom of the screen.



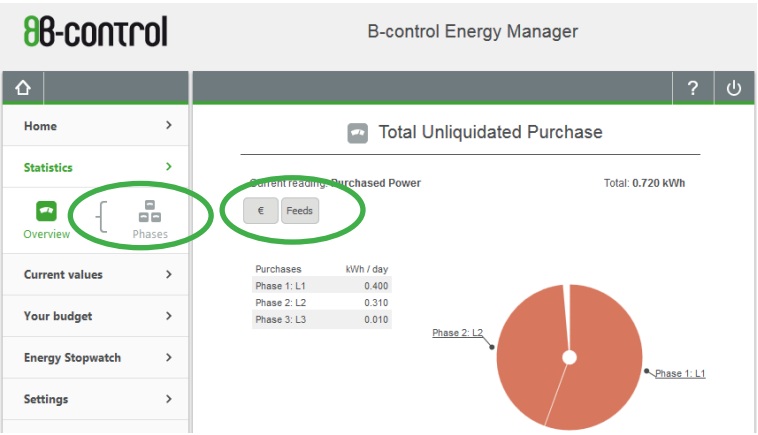
NOTE

The consumed power that was provided by your energy supply company is displayed both in kilowatts and as a monetary amount.
The feed-in power is only displayed in kW.

12.2 STATISTICS

The Energy Manager shows the measured values both in real time and over longer periods. To view your data over a period of 3 years, starting with the last quarter of an hour, over the total period or with details for each individual phase or for each individual current sensor (only for EM300 LR / EM300 LRW).

We have selected various views for the historical values in the Statistics menu item, which will demonstrate your energy consumption in a transparent way.



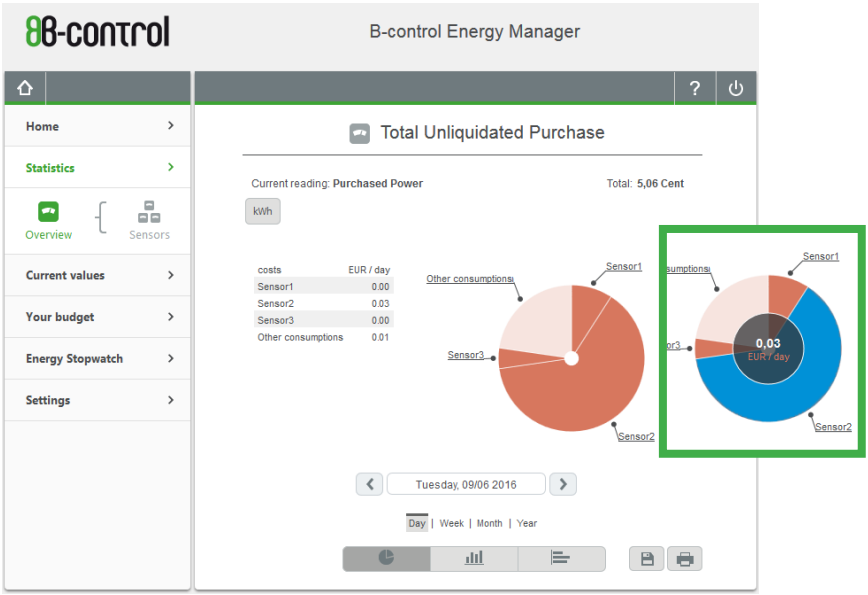
NOTE

The sensors are designed and shown only as power consumption meters.

If there are current sensors connected to the Energy Manager, you cannot switch between consumption and feed-in in the pie chart (see 12.2.1 on page 42) and bar chart (see 12.2.3 on page 45). Only the consumption values are displayed for the individual sensors.

12.2.1 OVERVIEW IN A PIE CHART

This graph clearly shows the distribution of your power consumption between the individual current sensors / phases. Click on the "pieces of pie" to total the values for various time intervals.

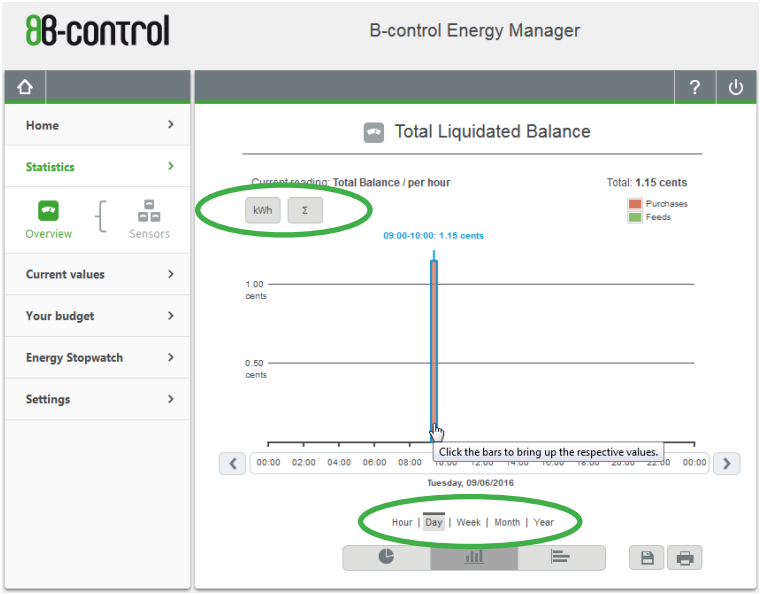


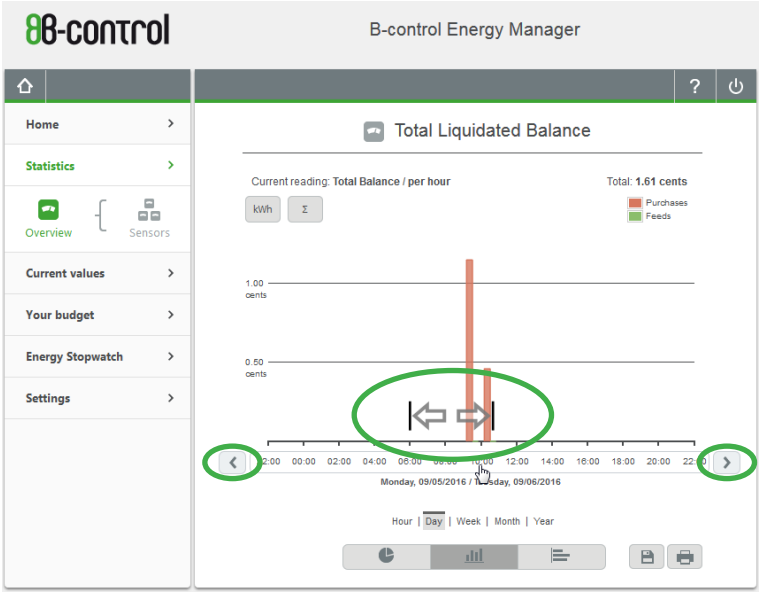
12.2.2 OVERVIEW IN COLUMN CHART

The column chart compares the current consumed from your energy supplier, totalled across all the current sensors / phases and the current you have fed in. These are shown in a single view. The graphic display of the power values and costs can be set using the “Hour”, “Day”, “Week”, “Month” or “Year” buttons at the bottom of the screen.

The data on which the chart is based is updated every 15 minutes.

Left-click on a column to view the consumption or the cost over a specific period, depending on the time interval selected. If, for example, the time interval has been set to "day", a bar represents a period of one hour.





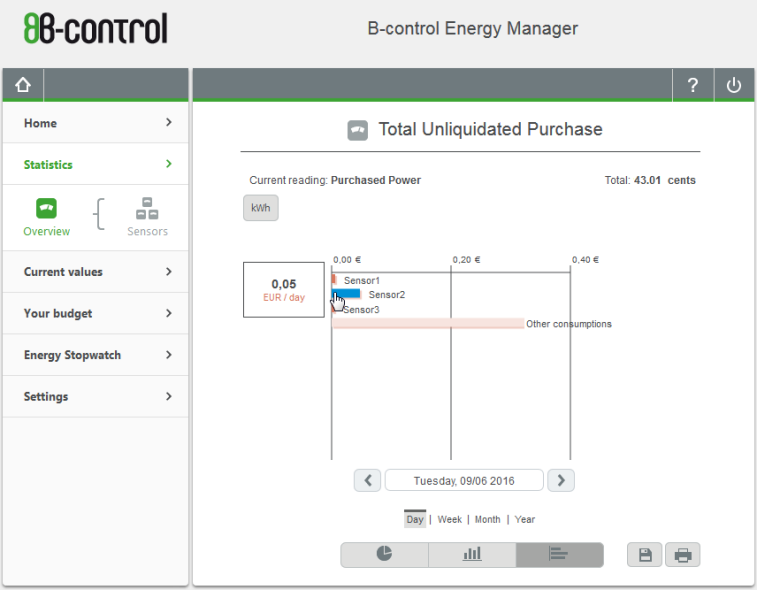
Note

You can analyse past periods in a specific view. The time axis has a scroll function for this purpose. Left-click on the scale of the time axis, hold down the mouse button and drag the axis in the desired direction. Alternatively, you can use the buttons on the left and right ends of the time axis.

12.2.3 OVERVIEW IN BAR DIAGRAM

Similar to the pie chart, you can use this view to see the distribution of the power values among the individual current sensors / phases.

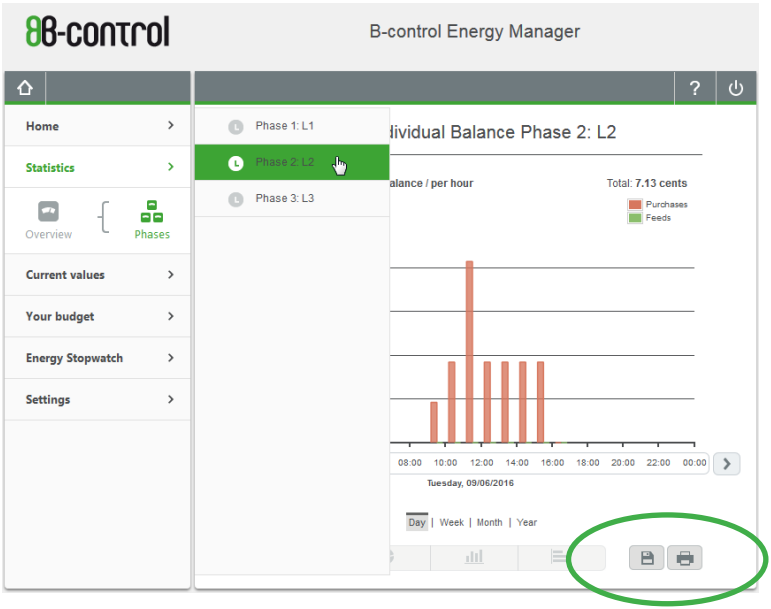
Click on the individual bars to total the values for various time intervals.



12.2.4 VIEWING INDIVIDUAL CURRENT SENSORS / PHASES IN THE COLUMN CHART

As in the column chart which provides an overview of your overall balance, this chart displays the current supplied by your energy supplier or the current fed in, although in this case it is the individual current sensor or phase that is considered.

This allows you to analyse for which current sensor / phase your consumption is highest.



12.2.5 PRINTING OR EXPORTING STATISTICS VIEWS

Each statistics menu provides you with two buttons for printing and exporting in CSV format. The output values relate to the currently selected view in the Statistics menu.

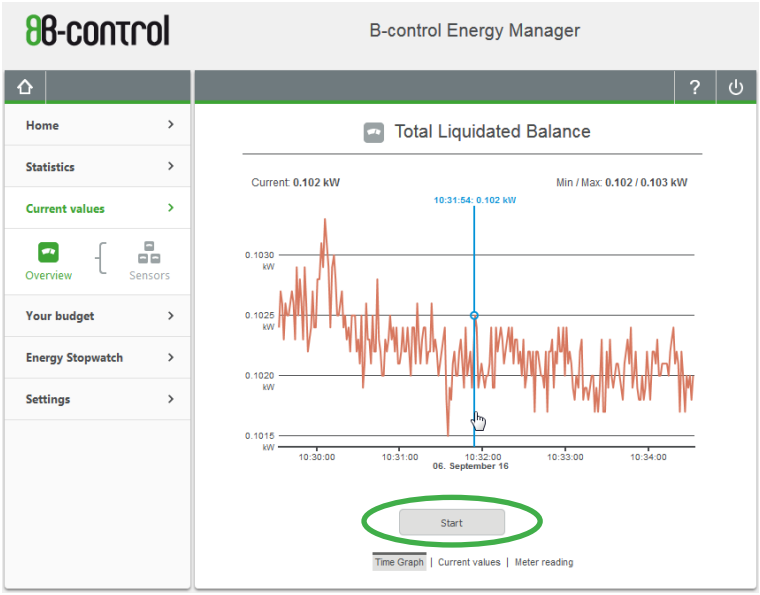
12.3 CURRENT VALUES – SHOWING THE POWER CONSUMPTION IN REAL TIME

In addition to the Energy Manager's start page which quantifies your power consumption or feed-in in real time, under "Current values" you also receive the Energy Manager's measurement results in real-time.

12.3.1 OVERVIEW - TIME GRAPH

Here you can display your energy flows over the last 5 minutes as a progression curve - in real time.

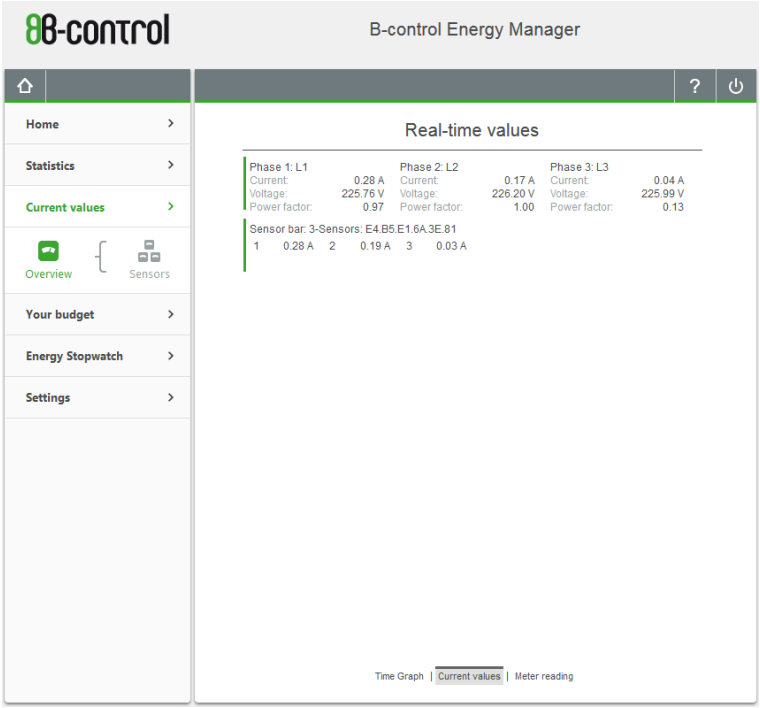
Once you have pressed the "Stop" button, you can click on any point on the progression curve and view the relevant consumption.



12.3.2 OVERVIEW – CURRENT VALUES

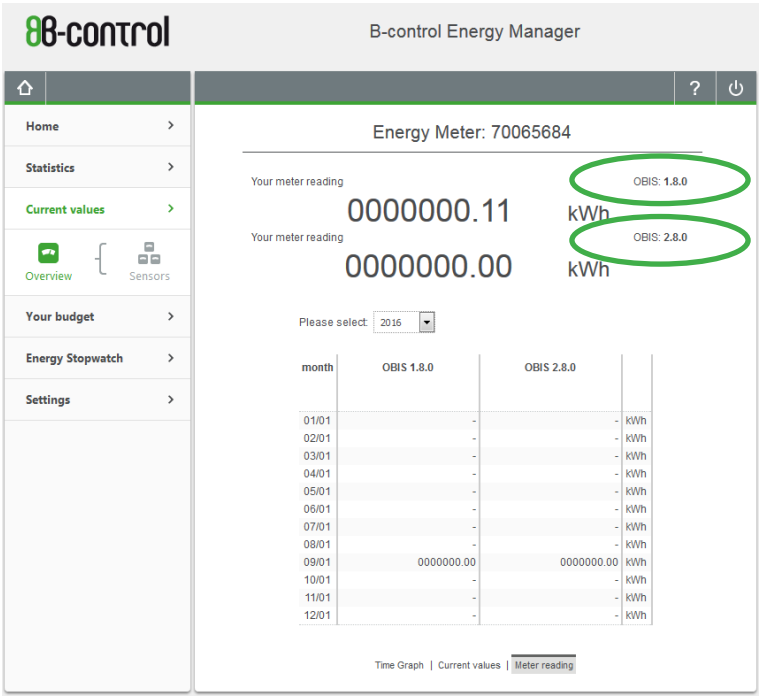
This view shows the live values for the three phases of the Energy Manager for current strength, voltage and power factor as numerical values.

If a sensor bar with current sensors is connected to the Energy Manager, the current strengths of the various current sensors are shown.



12.3.3 OVERVIEW – METER READING

Here you can view the meter readings for consumed current – Register 1.8.0 – and feed-in – Register 2.8.0. Metering will start from the moment the Energy Manager is installed.



Note

The values are updated every quarter of an hour.
The values in the monthly view are updated on the 1st calendar day of the following month.

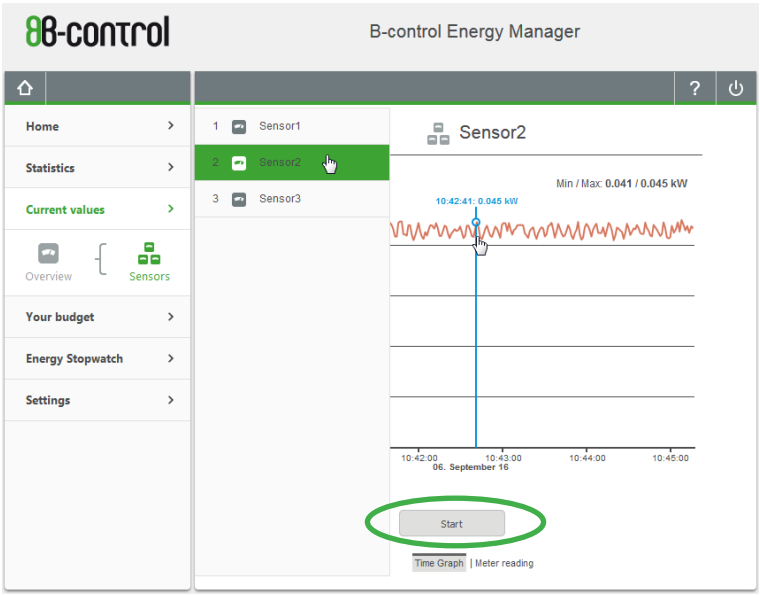
12.3.4 INDIVIDUAL CURRENT SENSORS / PHASES - TIME GRAPH AND METER READINGS

You can display your energy flows over the last 5 minutes in the “positive” direction (> energy consumption) or “negative” direction (> feed-in) as a progression curve - in real time and with respect to the individual phases. You can therefore draw more precise conclusions about individual consumers as you know which consumer is connected to which phase.

This function will identify any "power guzzler"!

If a sensor bar with current sensors is connected to the Energy Manager, you can also view the meter reading for each individual current sensor.

Once you have pressed the "Stop" button, you can click on any point on the progression curve and view the relevant consumption.

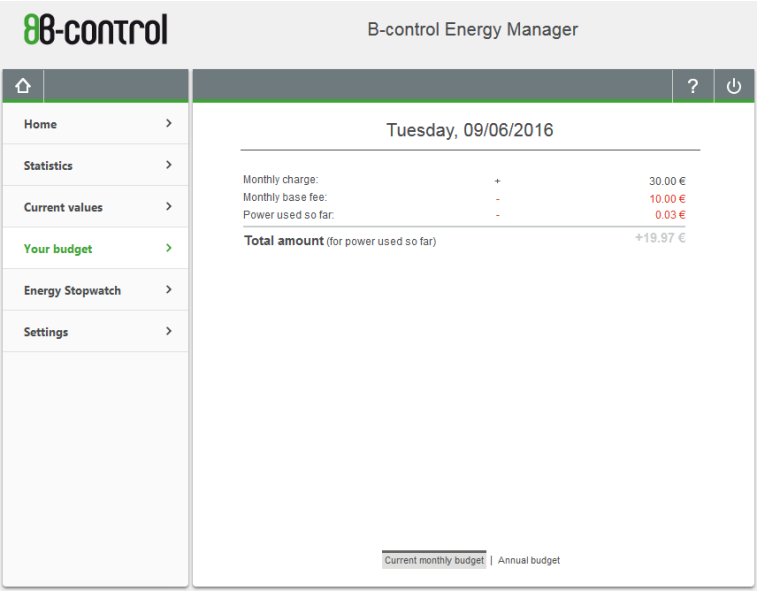


12.4 YOUR BUDGET

12.4.1 CURRENT MONTHLY BUDGET

The "Current monthly budget" page has an overview of your monthly energy costs; you will see whether your "power consumption behaviour" corresponds to your monthly instalment payments.

The final amount is calculated from the monthly instalment, the monthly basic fee and your energy consumption. You will, of course, only receive a provisional result for the current month.

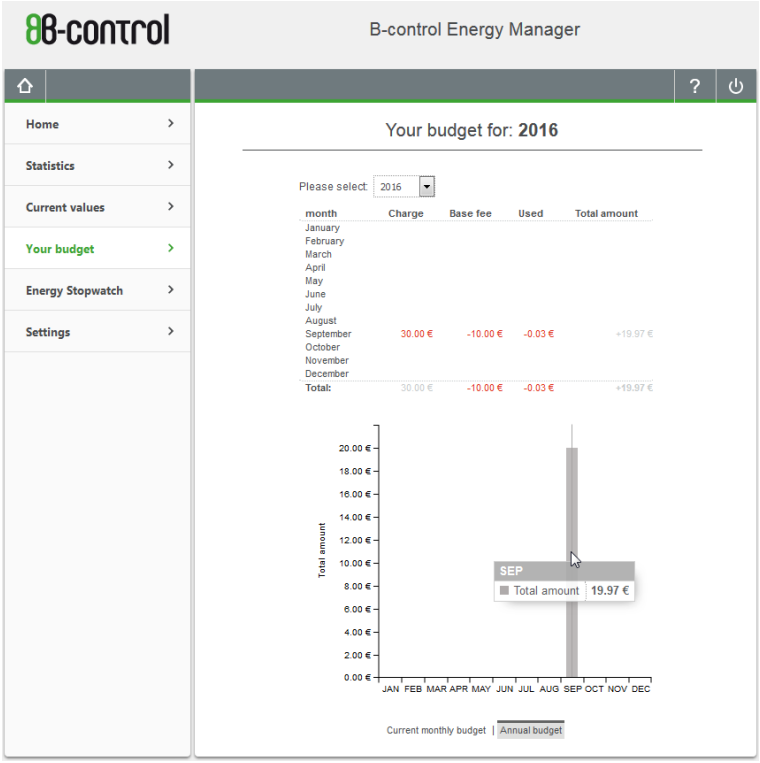


12.4.2 ANNUAL BUDGET

The "Annual budget" page shows a monthly breakdown of the instalment payments, the basic fee, the power costs and the resulting final amount for the selected year.

The values are displayed as numbers in a table and in a graph.

Click on a column in the diagram to view the final amount for the relevant month.



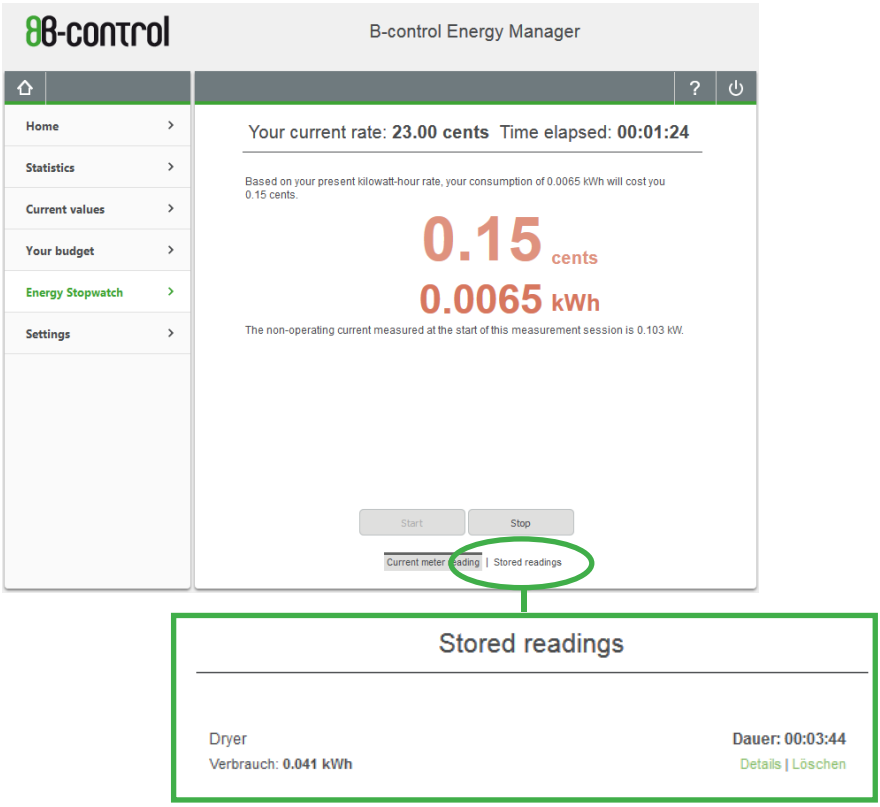
12.5 ENERGY STOP WATCH

How much does a washing machine spin cycle cost?

How much power does your old hair dryer, the kettle or the toaster use? You can solve these mysteries using the "energy stop watch".

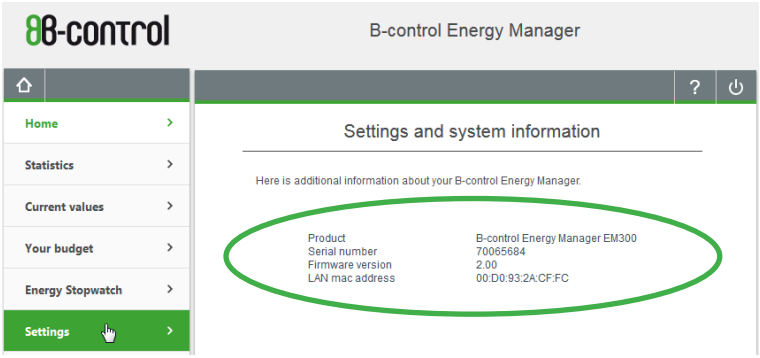
The Energy Manager measures the consumption of each individual device within a certain period – somewhat like a stop watch. Switch off all devices that do not have a continuous consumption and could thus falsify the measurement. The stop watch uses the remaining no-load current as the starting value for the measurement.

Start/stop the measuring process by pressing "Start" or "Stop".



12.6 SETTINGS

The "Settings" menu item shows you all configuration options for initial start-up.



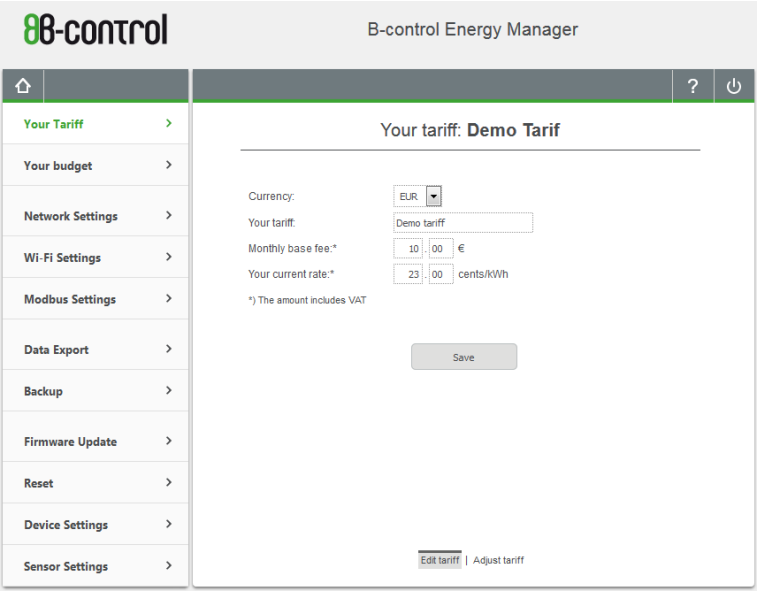
- You can also enter a conversion ratio for current transformers in the "Device settings" menu item.
- The "Backup" menu item allows you to save your configuration and the meter readings in a file.
- Any available software updates can be installed with the "Firmware Update" menu item.
- The "Reset" menu item is used to restart the Energy Manager, reset an individual network configuration and reset the Energy Manager to its as-delivered state.
- If a sensor bar with current sensors is connected to the Energy Manager, you can configure this too.

Note
The start page of the "Settings" menu item has all the information that TQ-Systems will need to provide support:
serial number, firmware version and MAC addresses.

12.6.1 YOUR TARIFF

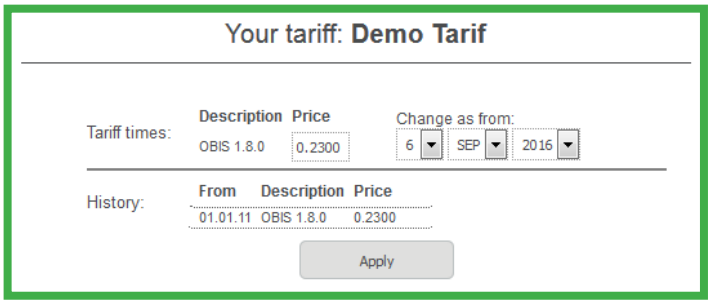
12.6.1.1 EDITING THE TARIFF

To allow the Energy Manager to calculate your power consumption costs, enter your monthly basic fee and your operating tariff on the "Your tariff" configuration page (also see section „11 Configuration for initial start-up“ from page 27).



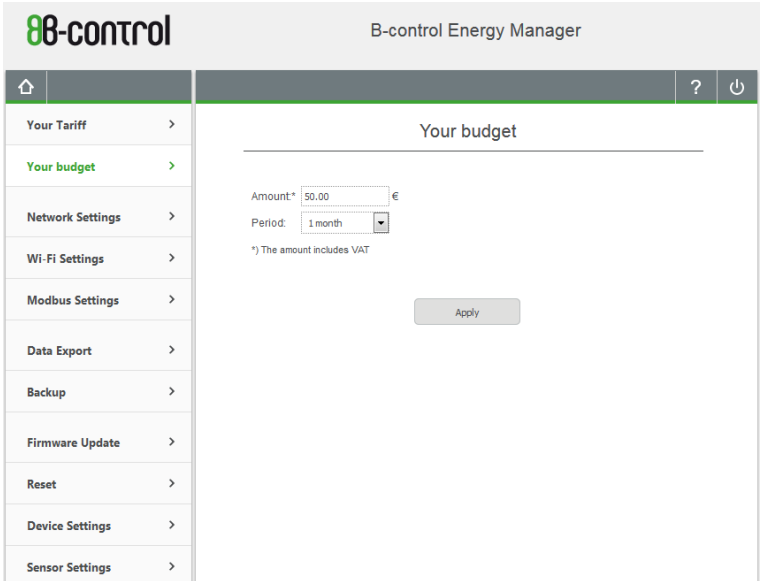
12.6.1.2 ADJUSTING THE TARIFF

This is used to specify that a different tariff applies from a certain date onwards.



12.6.2 YOUR BUDGET

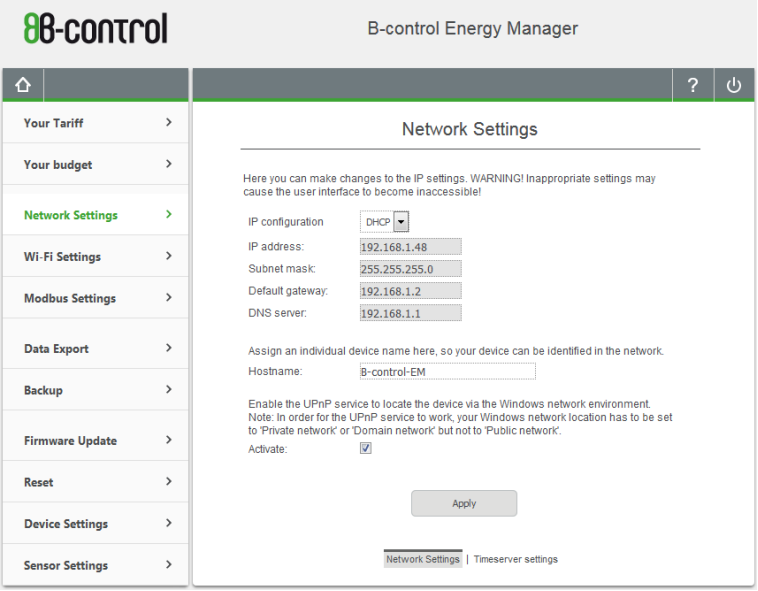
If you did not configure any instalment payments during the setting up process, you can do this now on the "Your budget" settings page. Enter the instalment amount including VAT and the instalment period.



12.6.3 NETWORK SETTINGS

12.6.3.1 IP ADDRESS OF NETWORK SETTINGS – VIA DHCP OR STATIC

Use this page to configure the network settings of your Energy Manager.



Here you can assign a static IP address rather than the IP address that the Energy Manager obtains automatically from your router via DHCP.

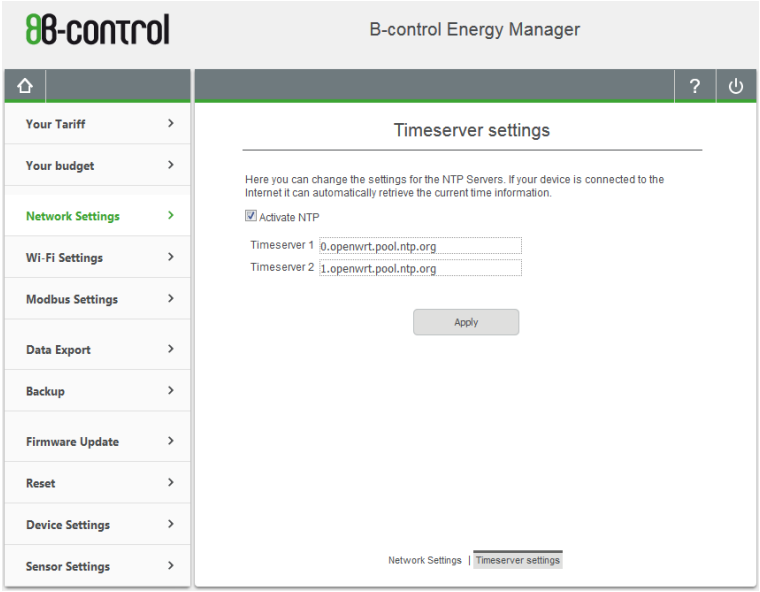
You can also assign an individual host name to the Energy Manager under which it will be shown in the network.

When you activate the Universal Plug and Play service by checking the check box, the Energy Manager can be seen under My Network Places in Windows.

After clicking on "Apply", the Energy Manager will restart and will be integrated into your network in accordance with the configurations specified by you.

12.6.3.2 TIME SERVER SETTINGS

This allows you to decide whether the Energy Manager should automatically obtain its time from the network via a server. If your device is permanently connected to the Internet via your network, we recommend activating this option.

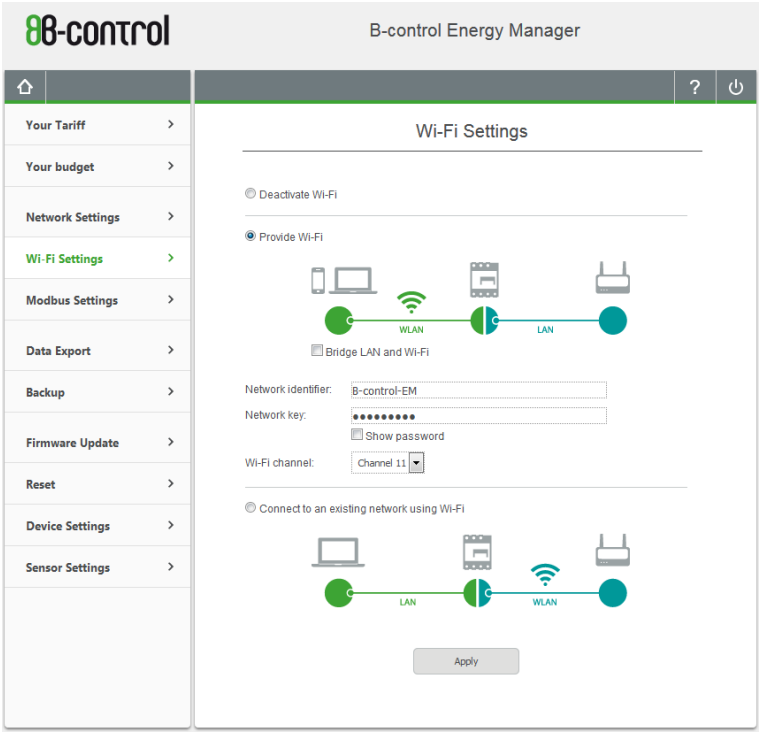


NOTE

If you activate the NTP option by checking the check box, the Energy Manager synchronises with the specified time servers. If you have installed several Energy Managers, this will ensure that all the Energy Managers are synchronised with one another.

12.6.4 WIFI SETTINGS

See section „11.8 WiFi configuration (for WiFi version)“ from page 34.



12.6.5 MODBUS SETTINGS

The B-control Energy Manager has the option of transferring the measured data at variable intervals via standard interfaces – Modbus-TCP, Modbus-RTU (only EM300 LR / EM300 LRW) and via an http interface (JSON).

12.6.5.1 WHICH MEASURED VALUES ARE MADE AVAILABLE VIA THE INTERFACES?

The B-control Energy Manager measures active, reactive and apparent power and power factor for each phase and in total, as well as the current strength and voltage for each phase and the grid frequency. All measured values are transmitted via Modbus-TCP, Modbus-RTU (only EM300 LR / EM300 LRW) or http (JSON format).

Resolution of the transferred measured values (via Modbus) as an overview

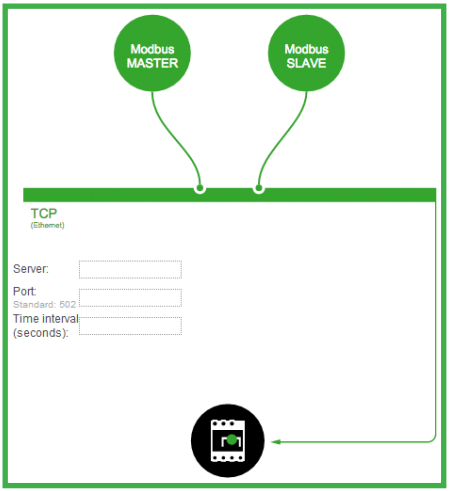
Active power	> 0.1 W
Reactive power	> 0.1 VA
Apparent power	> 0.1 var
Power factor	> 0.001 (unitless)
Current strength	> 0.001 A
Voltage	> 0.001 V
Mains frequency	> 0.001 Hz

NOTE

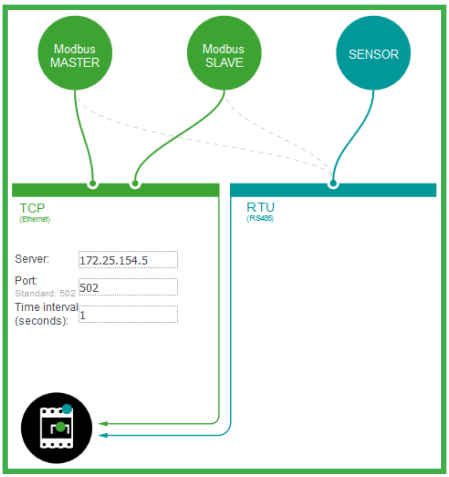
In addition to this manual, extensive documentation regarding the measured values transmitted via the interfaces is available for download at www.b-control.com.
(see the following pages in detail)

12.6.5.2 OPTIONS FOR COMBINING THE INTERFACES

- The Energy Manager EM300 L provides its measured values via Modbus-TCP in master or slave mode.

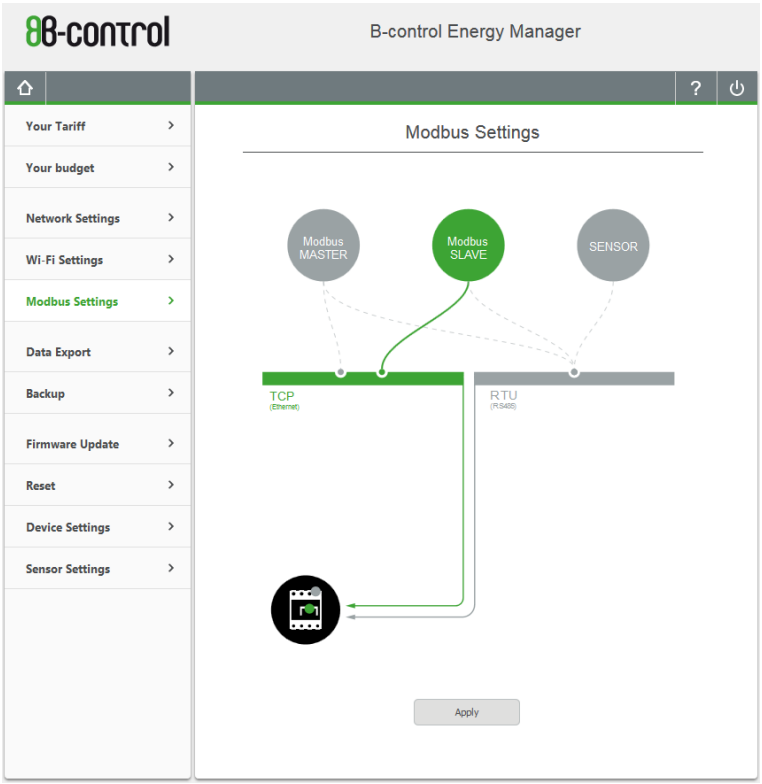


- The Energy Manager EM300 LR / EM300 LRW provides its measured values via Modbus-TCP and Modbus-RTU in master or slave mode. If there are sensors connected, the Energy Manager automatically activates Modbus-RTU communication with the sensors.
  If you want to transfer the measured values via Modbus-RTU to another Modbus station, you must deactivate the RTU interface to the current sensors (see section 12.6.5.10 on page 69).



12.6.5.3 CONFIGURATION OF DATA TRANSMISSION VIA MODBUS-TCP // SLAVE MODE

By default, the Energy Manager is preconfigured for data transmission via Modbus-TCP. For this reason, the configuration in slave mode is considered in more detail below.

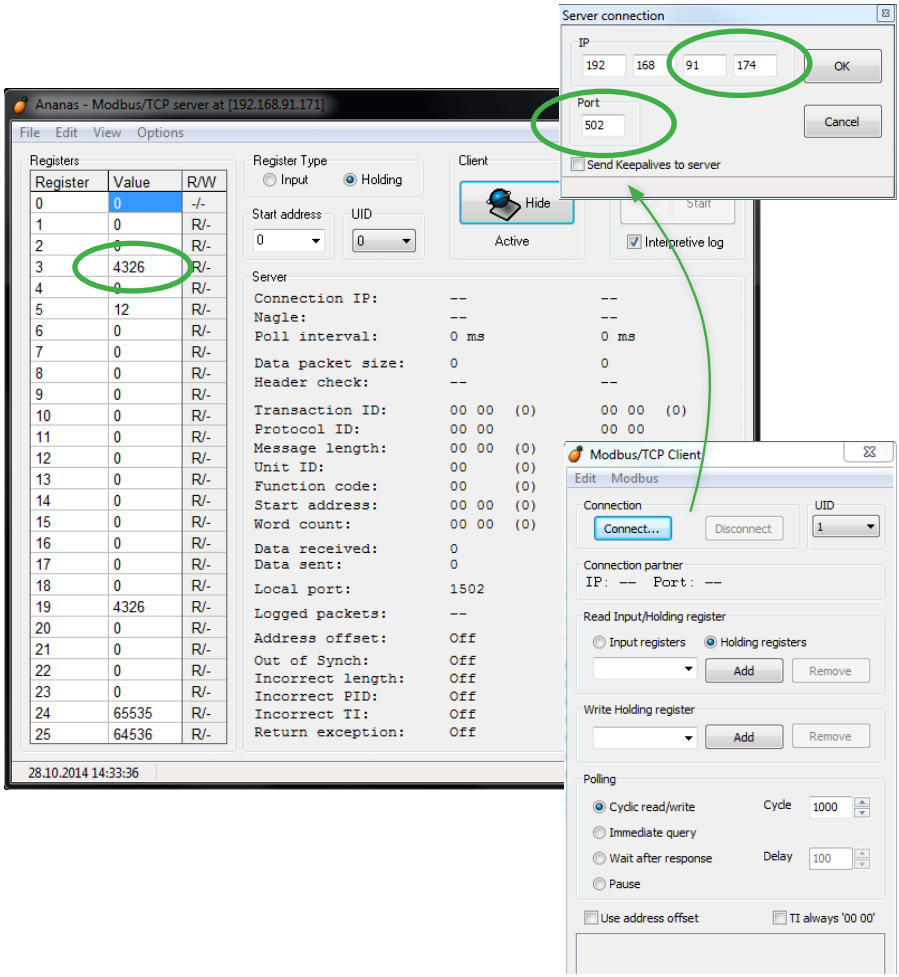


NOTE

You can easily use an object to test the Modbus transmission of the Energy Master, both in master and in slave mode. We recommend the open-source tool "Ananas", which you can download for the Windows platform at http://www.tuomio.fi/ananas/.

12.6.5.4 SETTING UP THE REMOTE STATION USING THE "ANANAS" TOOL

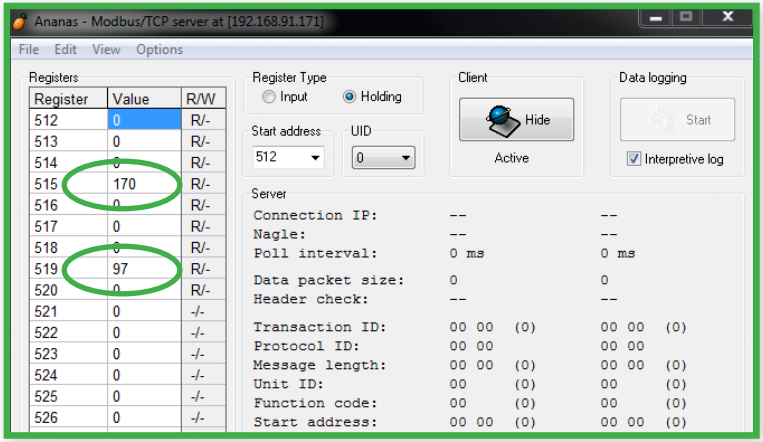
The Energy Manager provides a Modbus-TCP server that uses the industry standard port 502 for incoming connection requests. Please configure the remote station on Port 502 and enter the IP address that was allocated to the Energy Manager in the network or that you assigned to it.



12.6.5.5 OBIS REGISTER RANGES IN SLAVE MODE

The current values are transmitted in real time in the address ranges from 1 to 511 (see screenshot in section 12.6.5.1 on page 60).

From address range 512 onwards, the persistently stored register values are transmitted, e.g. you will find the reference meter reading – OBIS Register 1.8.0 – in Sum Register 515.

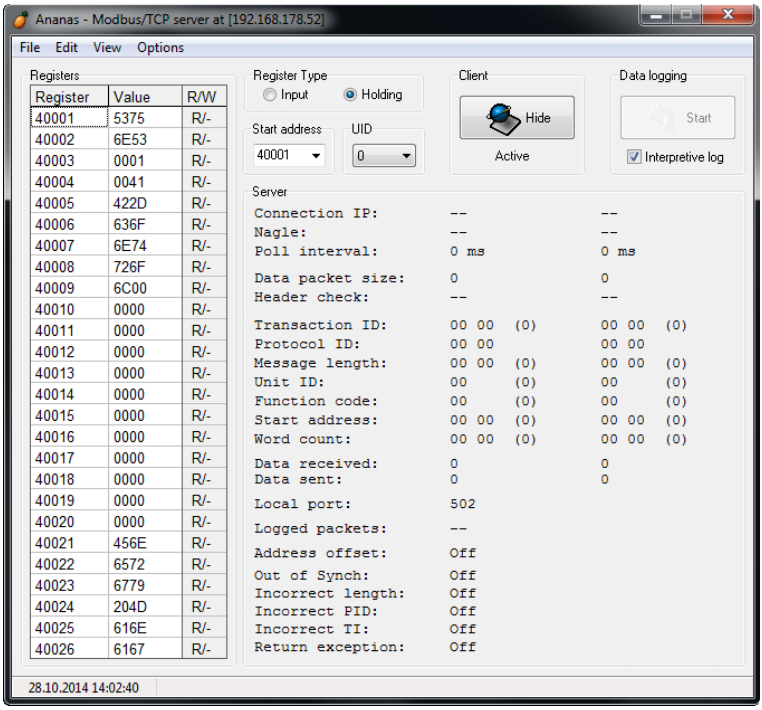


NOTE

You will find the OBIS register description in the documentation on data transmission by the Energy Manager in the download section on the B-control website www.b-control.com

12.6.5.6 SUNSPEC REGISTER RANGES IN SLAVE MODE

In addition, the SunSpec register ranges are also available to you in slave mode – Register 40001 to 40178.

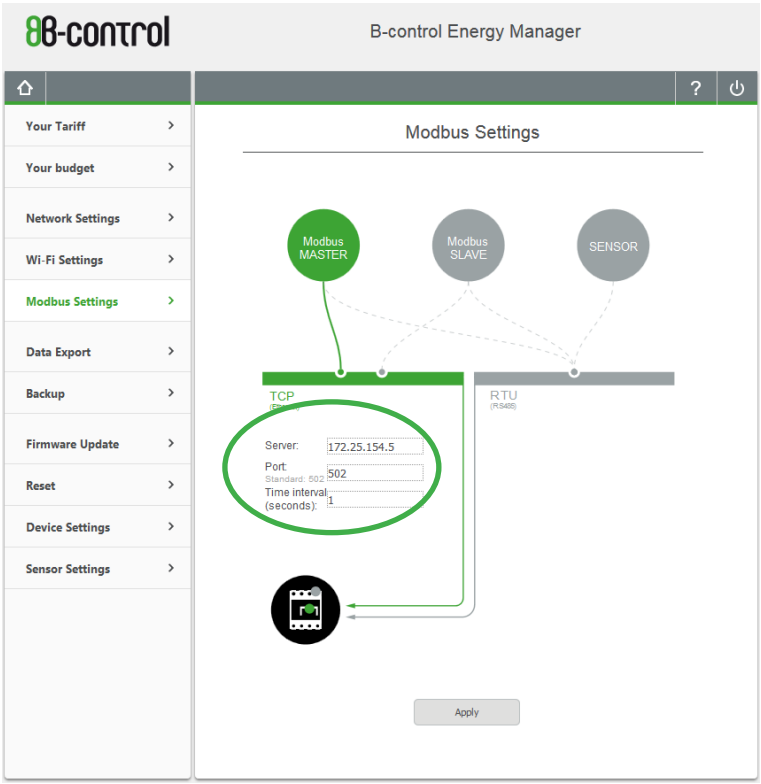


NOTE

You will find the OBIS register description in the documentation on data transmission by the Energy Manager in the download section on the B-control website www.b-control.com

12.6.5.7 CONFIGURATION OF DATA TRANSMISSION VIA MODBUS-TCP // MASTER MODE

If you run the Energy Manager as a Modbus master, all the fields needed for parameter settings are available to you in the configuration interface.

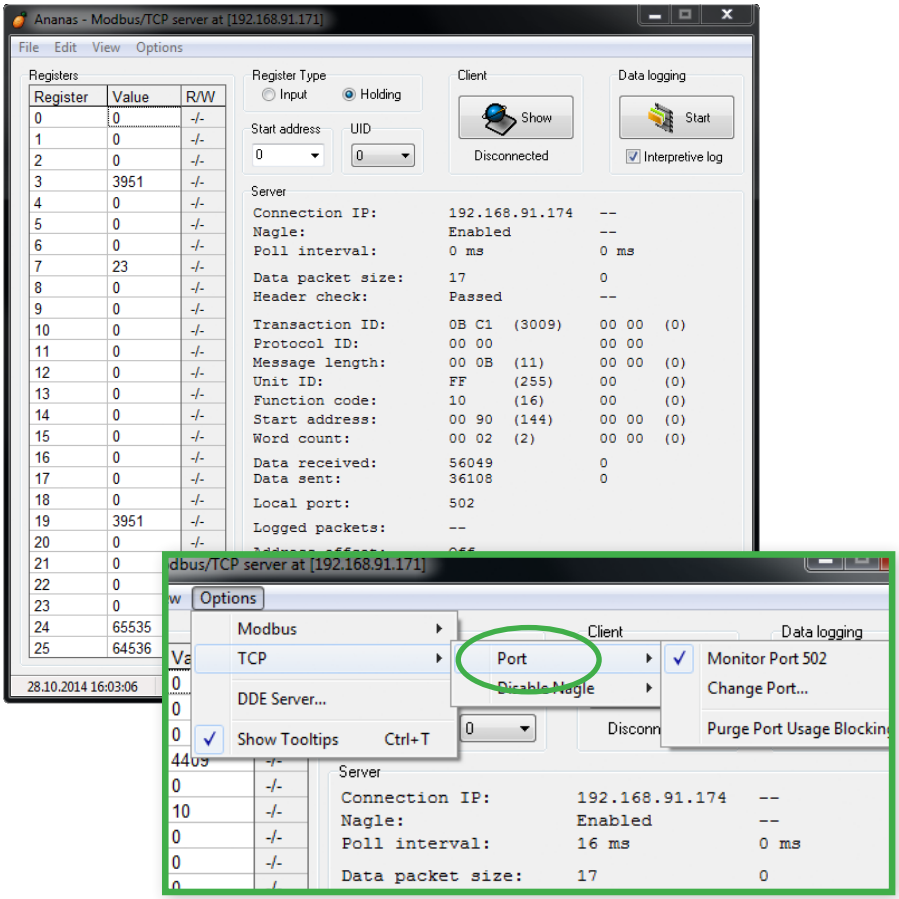


- Enter the IP of your remote station under "Server".
- The port is set to 502 by default, but you can configure the port for your remote station.
- You can set up the interval for transmitting measured values from 1 s to 999 s (the default setting is 60 s).

12.6.5.8 SETTING UP THE REMOTE STATION USING THE "ANANAS" TOOL

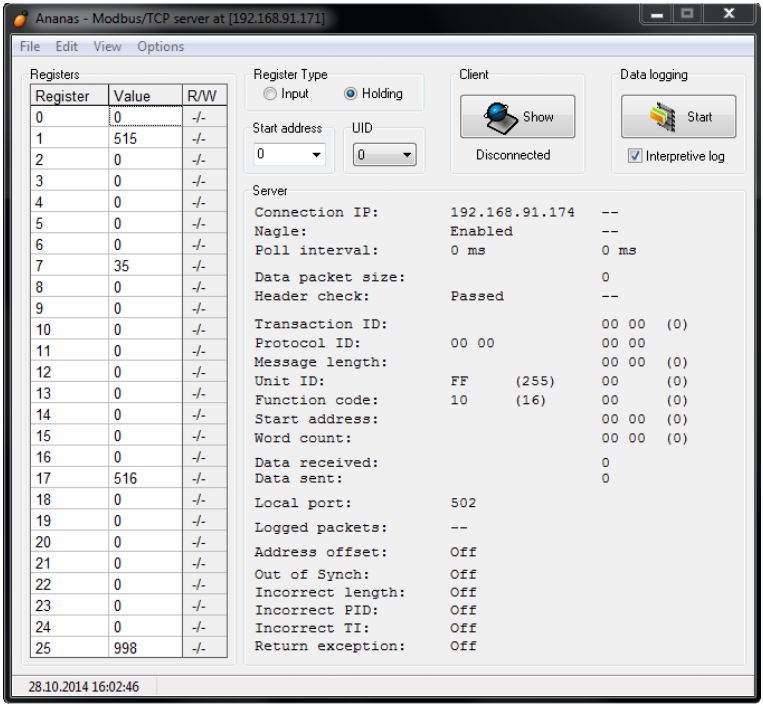
Once you have configured the Energy Manager as the master for the remote station, the Modbus slave will automatically receive the values at the set interval.

Check the port if you do not receive any values.



12.6.5.9 REGISTER ADDRESS RANGES IN MASTER MODE

If the Energy Manager is used as a master, you can use the same register ranges as for the slave operation, with the exception of the SunSpec register which by definition is only accessible in slave mode.

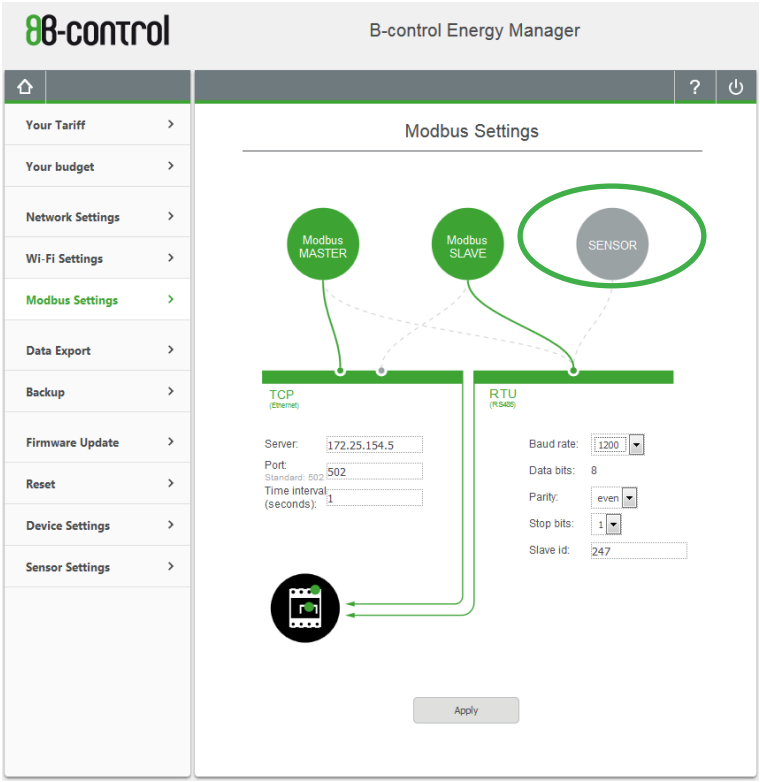


NOTE

The detailed documentation of the transmitted Energy Manager values is available in the download section on the B-control website www.b-control.com.

12.6.5.10 DEACTIVATING THE RTU INTERFACE TO THE CURRENT SENSORS (ONLY EM300 LR / EM300 LRW)

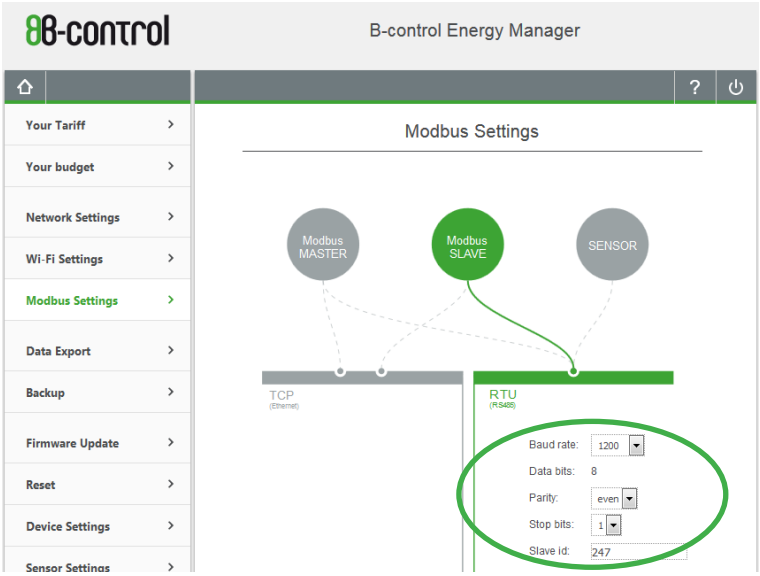
The Energy Manager EM300 LR / EM300 LRW makes its measured values available via Modbus-TCP and Modbus-RTU. If you want to transfer the measured values in master or slave mode via Modbus-RTU, you must deactivate the RTU interface to the current sensors.



12.6.5.11 DATA TRANSMISSION VIA MODBUS RTU // SLAVE MODE (ONLY EM300 LR / EM300 LRW)

For Modbus-RTU, you can enter the following settings, depending on your remote station:

- Baud rate: You can choose any transmission speed between 1200 and 115200 baud.
- Parity: Here you define the error detection at protocol level. The possible values are no parity, even or odd.
- Stop bits: You can choose between 1 and 2 bit, depending on the remote station.
- Slave ID: Allocate a unique address between 1 and 247.

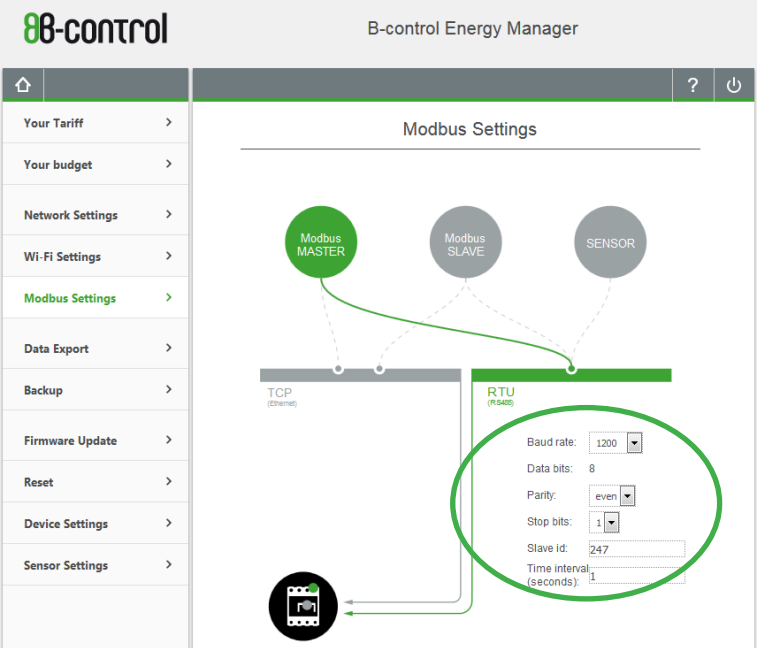


Modbus RTU documentation (slave)
The detailed documentation of the transmitted Energy Manager values is available in the download section on the B-control website www.b-control.com.

12.6.5.12 DATA TRANSMISSION VIA MODBUS RTU // MASTER MODE (ONLY EM300 LR / EM300 LRW)

If the Energy Manager is used as a master, data can be transmitted via Modbus-RTU with the same configuration as in slave mode, depending on your remote station, but the interval times will need to be defined.

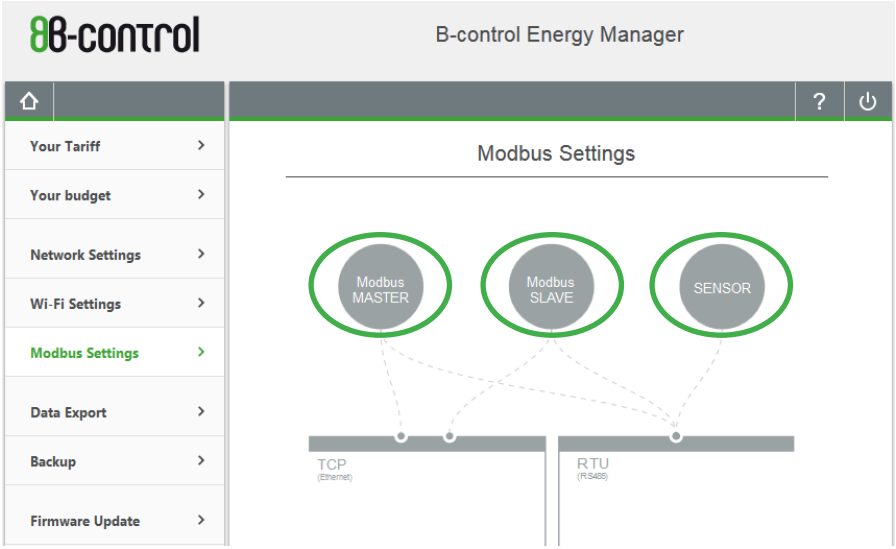
- Time interval: May be set between 1 and 999 seconds, depending on the remote station.



Modbus RTU documentation (master)
The detailed documentation of the transmitted Energy Manager values is available in the download section on the B-control website www.b-control.com.

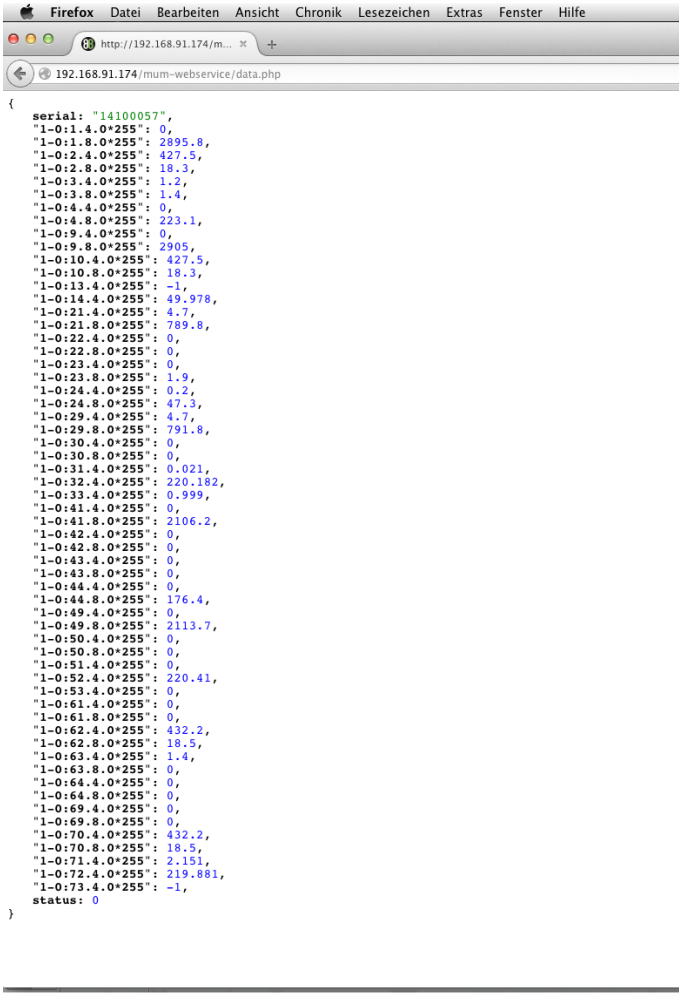
12.6.5.13 DATA TRANSMISSION VIA THE HTTP INTERFACE (JSON)

All measured values provided by the Energy Manager via Modbus can also be transmitted via a web interface - JSON format - directly to another application that is running locally on the network or on a server.



NOTE

The data transmission function via the http interface works parallel to the Modbus MASTER, Modbus SLAVE and SENSOR.



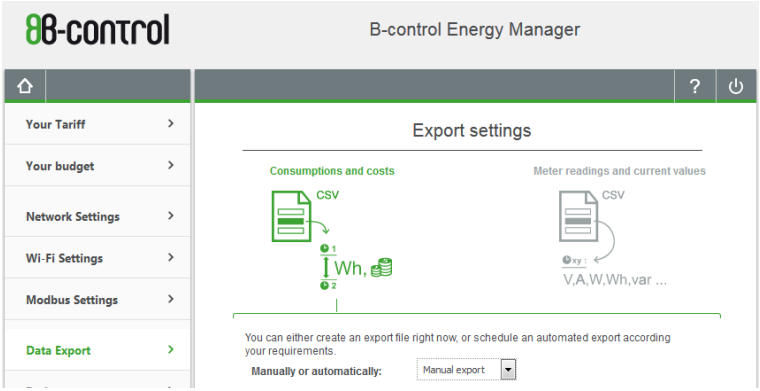

```
{
    serial: "14100057",
    "1-0:1.4.0*255": 0,
    "1-0:1.8.0*255": 2895.8,
    "1-0:2.4.0*255": 427.5,
    "1-0:2.8.0*255": 18.3,
    "1-0:3.4.0*255": 1.2,
    "1-0:3.8.0*255": 1.4,
    "1-0:4.4.0*255": 0,
    "1-0:4.8.0*255": 223.1,
    "1-0:9.4.0*255": 0,
    "1-0:9.8.0*255": 2905,
    "1-0:10.4.0*255": 427.5,
    "1-0:10.8.0*255": 18.3,
    "1-0:13.4.0*255": -1,
    "1-0:14.4.0*255": 49.978,
    "1-0:21.4.0*255": 4.7,
    "1-0:21.8.0*255": 789.8,
    "1-0:22.4.0*255": 0,
    "1-0:22.8.0*255": 0,
    "1-0:23.4.0*255": 0,
    "1-0:23.8.0*255": 1.9,
    "1-0:24.4.0*255": 0.2,
    "1-0:24.8.0*255": 47.3,
    "1-0:29.4.0*255": 4.7,
    "1-0:29.8.0*255": 791.8,
    "1-0:30.4.0*255": 0,
    "1-0:30.8.0*255": 0,
    "1-0:31.4.0*255": 0.021,
    "1-0:32.4.0*255": 220.182,
    "1-0:33.4.0*255": 0.999,
    "1-0:41.4.0*255": 0,
    "1-0:41.8.0*255": 2106.2,
    "1-0:42.4.0*255": 0,
    "1-0:42.8.0*255": 0,
    "1-0:43.4.0*255": 0,
    "1-0:43.8.0*255": 0,
    "1-0:44.4.0*255": 0,
    "1-0:44.8.0*255": 176.4,
    "1-0:49.4.0*255": 0,
    "1-0:49.8.0*255": 2113.7,
    "1-0:50.4.0*255": 0,
    "1-0:50.8.0*255": 0,
    "1-0:51.4.0*255": 0,
    "1-0:52.4.0*255": 220.41,
    "1-0:53.4.0*255": 0,
    "1-0:61.4.0*255": 0,
    "1-0:61.8.0*255": 0,
    "1-0:62.4.0*255": 432.2,
    "1-0:62.8.0*255": 18.5,
    "1-0:63.4.0*255": 1.4,
    "1-0:63.8.0*255": 0,
    "1-0:64.4.0*255": 0,
    "1-0:64.8.0*255": 0,
    "1-0:69.4.0*255": 0,
    "1-0:69.8.0*255": 0,
    "1-0:70.4.0*255": 432.2,
    "1-0:70.8.0*255": 18.5,
    "1-0:71.4.0*255": 2.151,
    "1-0:72.4.0*255": 219.881,
    "1-0:73.4.0*255": -1,
    status: 0
}
```


Where can I find a description of data transfer via http/JSON?
The documentation for Energy Manager data transmission is available in the download section on the B-control website www.b-control.com.

12.7 DATA EXPORT

In the "Data export" menu you can set up a manual data export or make all the settings for an automatic data export.

You can request either "Consumption and costs" or the "Meter Readings and Current Values".

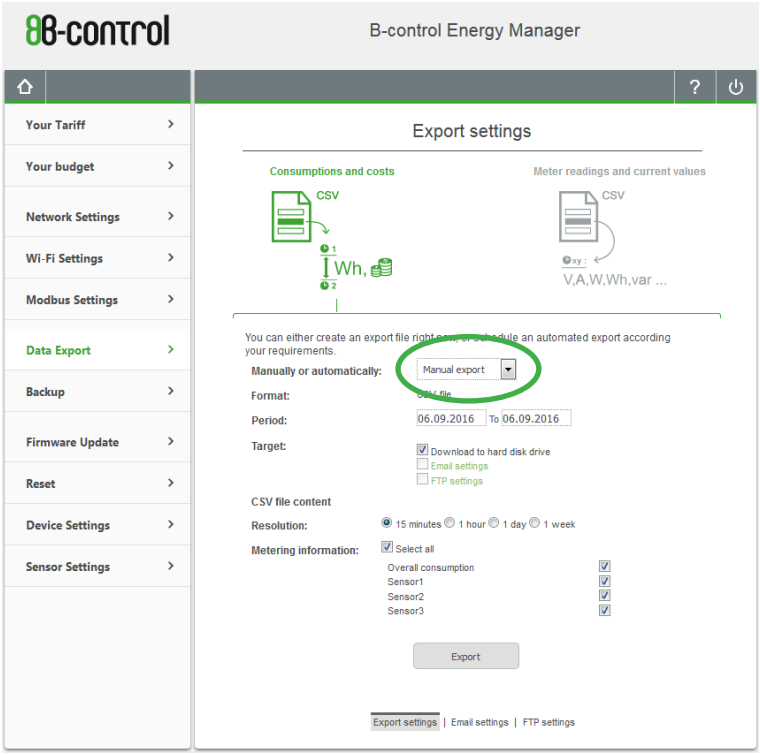


Export file: The data is compiled in a table in CSV format in a file which you can open in any standard spreadsheet program.

12.7.5.1 CONSUMPTION AND COSTS - MANUAL DATA EXPORT

If you activate the manual export function (default setting), the data for the requested period is exported directly in the resolution you defined and will be available immediately as a download file.

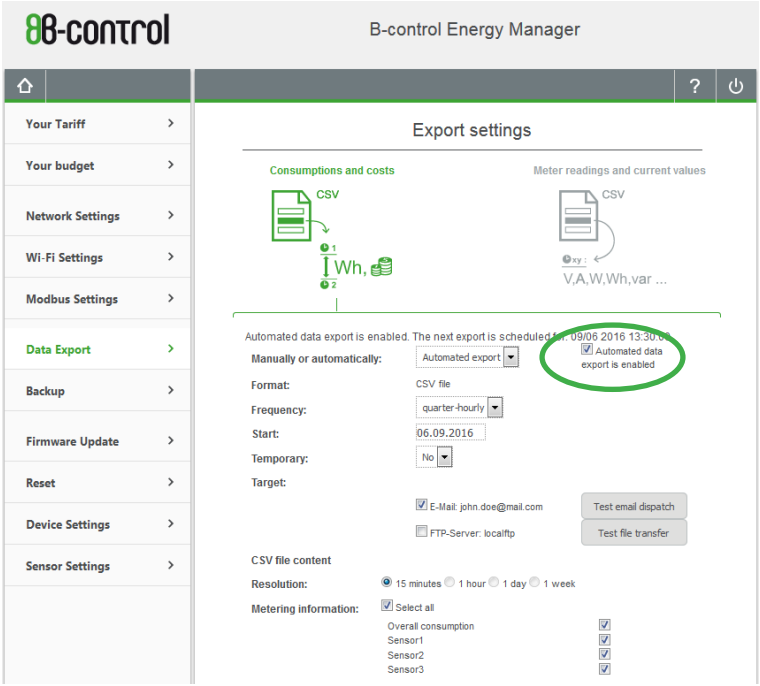
You can also filter the export of measured data by total consumption and by current sensor / phases.



You can export the values saved for each week, down to the smallest unit of 15 minutes. The exported values can be generated for a period of 3 months. But there is no restriction on subsequent use of the data.

12.7.5.2 CONSUMPTION AND COSTS - AUTOMATIC DATA EXPORT

If you activate the automated export function, the data will be sent to you in an export file, either by e-mail or to an FTP server. However, this requires further settings to be made for e-mail dispatch or storage on your FTP server (see section 12.7.5.4 on page 78 and 12.7.5.5 on page 79).

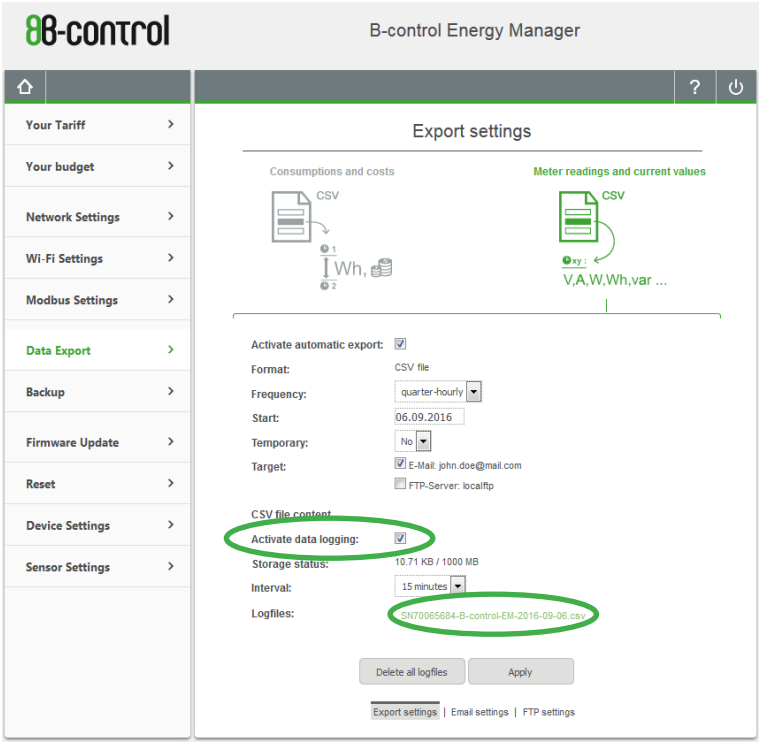


NOTE

Please ensure that automatic data export has been activated with a tick. The function requires an export destination to be selected - either e-mail or an FTP server.

12.7.5.3 METER READINGS AND CURRENT VALUES

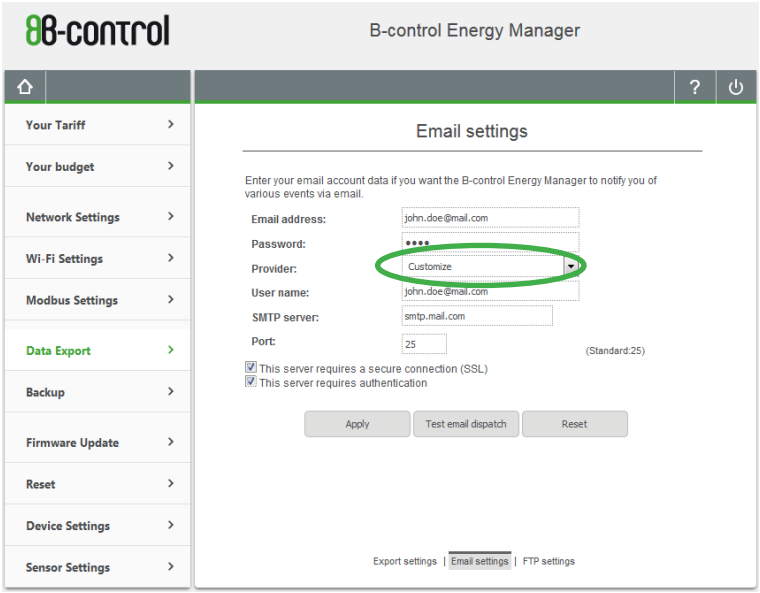
This menu is used to configure the automatic export of meter readings and current values. The scope of the exported data depends on the combination of the set parameters. You can send the data automatically by e-mail, FTP or encrypted via SFTP.
In addition, the data for a selected time interval can be saved in log files by choosing the "Activate data logging" option. Left-click on the log file name to access the compiled CSV file.



NOTE
The factory setting for the data logging is activated with a 15-minute interval.

12.7.5.4 E-MAIL SETTINGS

If you wish to activate the file transfer by e-mail, you will first need to make the necessary e-mail settings. If your e-mail provider is not in the drop-down list, you can enter your own values by selecting "Customize" (at the very bottom of the list). You can find these values on your e-mail provider's help pages (key term: configuring other e-mail clients).



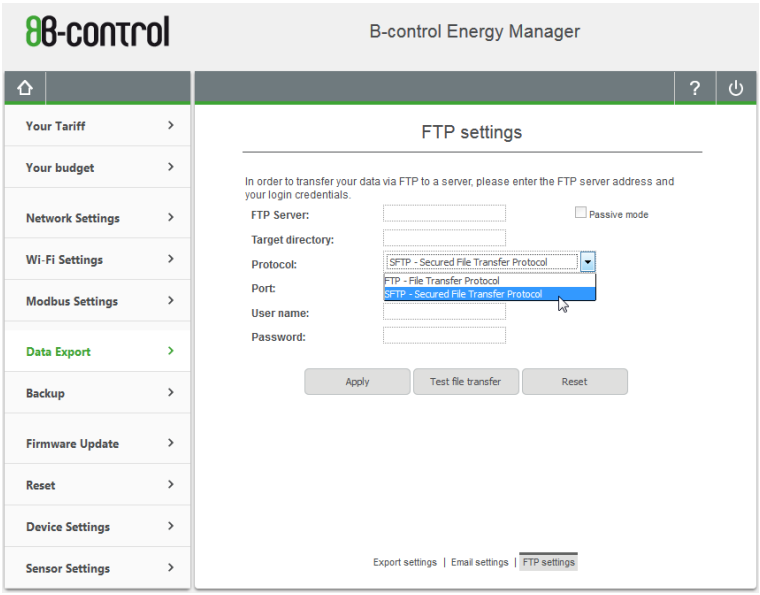
Note

Click the "Test e-mail dispatch" button to test your settings. This will immediately send a test e-mail to the e-mail address that you entered.

12.7.5.5 FTP SETTINGS

If you wish to activate the file upload to an FTP server, you will first need to make the necessary FTP settings.

You can send the data either unencrypted via FTP or encrypted via SFTP.



Note

Click the "Test file transfer" button to test your settings. This will immediately send a test file to the address that you entered.

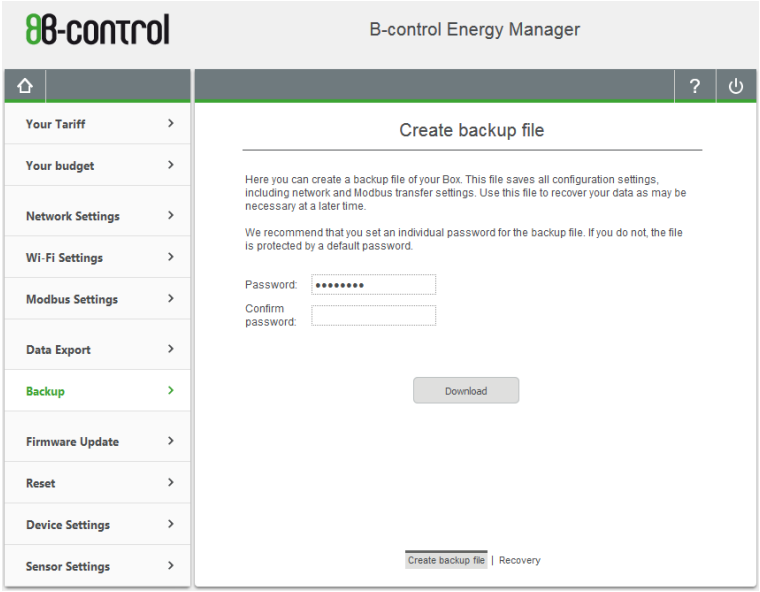
12.8 BACKUP

Your data backup allows you to restore the collected consumption values and the settings you have made at any time.

12.8.1 CREATING A BACKUP FILE

This is used to download your data backup as a file. You should save this file on the hard drive of your computer.

If any of the infrastructure in your distributor box needs to be changed, for example, and this requires the Energy Manager to be disconnected, you should first back up your data.

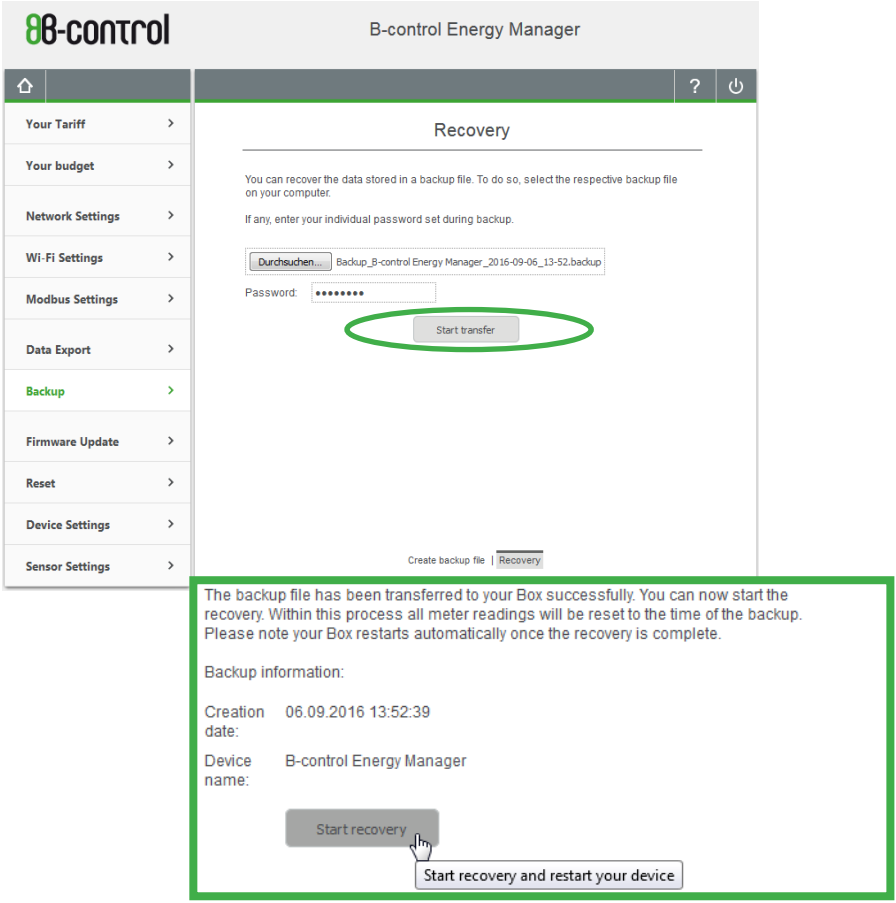


Note

It is recommended to allocate an individual password for a data backup in order to protect your data backup against external access. However, you can also create a data backup that is not password-protected.

12.8.1.1 RESTORING A DATA BACKUP

- Select the data backup file on your computer that you would like to transmit to the Energy Manager.
- Enter the password that you assigned when you created the data back-up. If you did not allocate a password, leave this field blank.
- Click on "Start transfer" to transfer the data backup file to the Energy Manager.

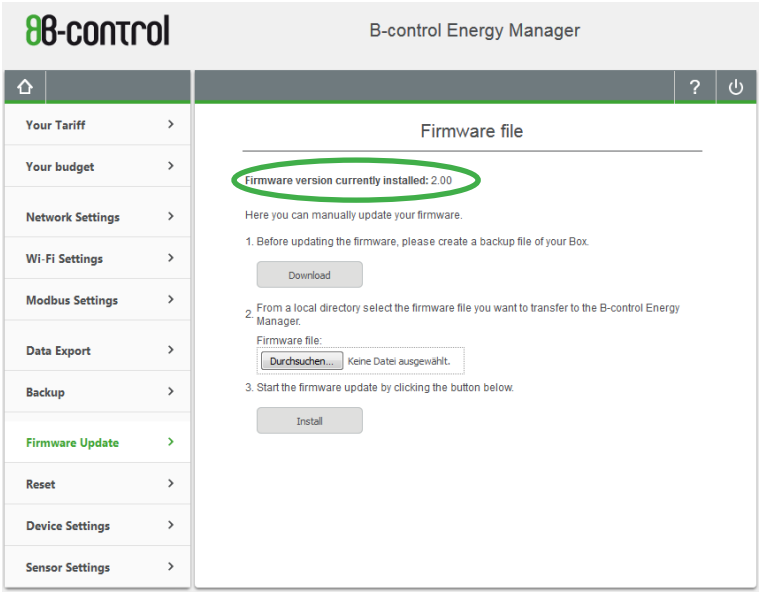


12.9 FIRMWARE UPDATE

New firmware updates are available in the download section on the B-control website www.b-control.com. Download the latest version to your PC.

Then click the "Select file" button to select the downloaded firmware file and start installing it.

Installation runs automatically and may take a few minutes. The installation is complete when the Energy Manager returns to the Home page or log-in page.



NOTE

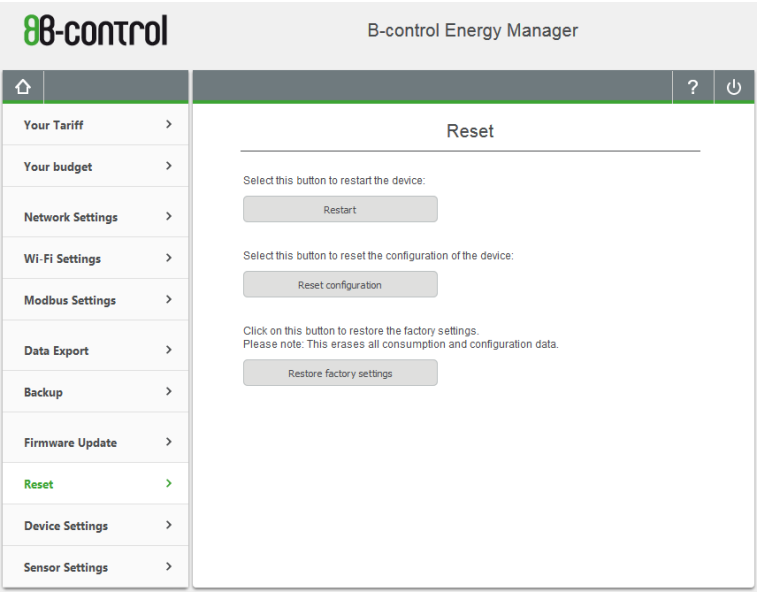
On this page you can see which firmware version is currently installed on your Energy Manager.

12.10 RESETTING (RESET FUNCTIONS)

12.10.1 RESET FUNCTIONS VIA THE WEB INTERFACE

The "Reset" page is used to reset the Energy Manager to its factory defaults. You can restart the device, reset the configuration of your device or restore the initial as-delivered state.

When resetting the configuration, network settings such as an individually allocated IP address, a unique host name or an individual WiFi password will be reset but your Modbus settings will remain (see section 12.6.5 from page 60).



Attention

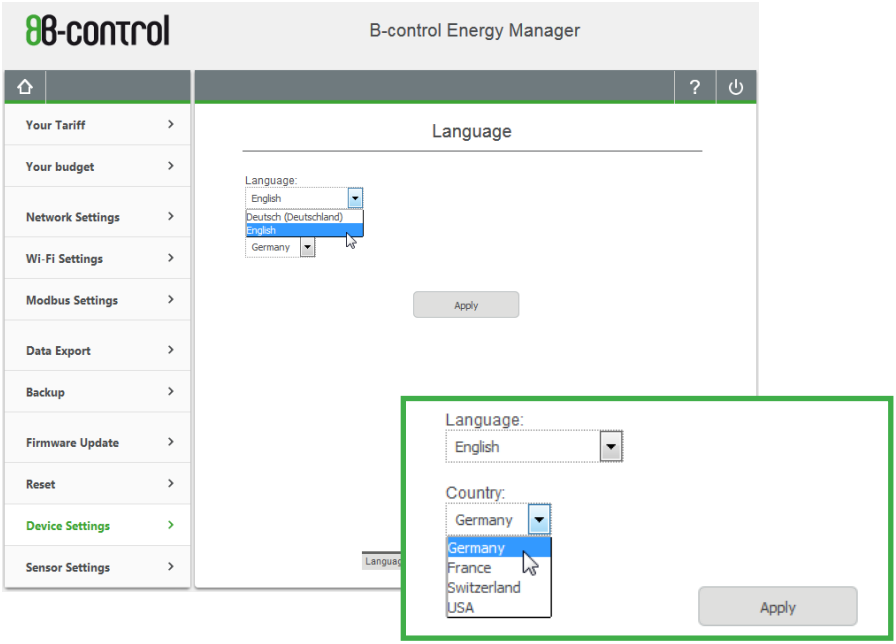
When resetting the device to factory mode, all the configurations and meter readings in the corresponding registers will be reset.

12.11 DEVICE SETTINGS

12.11.1 LANGUAGE AND LOCATION

The Energy Manager automatically uses the language that is set in your browser.

The "Device settings" menu allows you to manually change the language and location settings of the user interface.



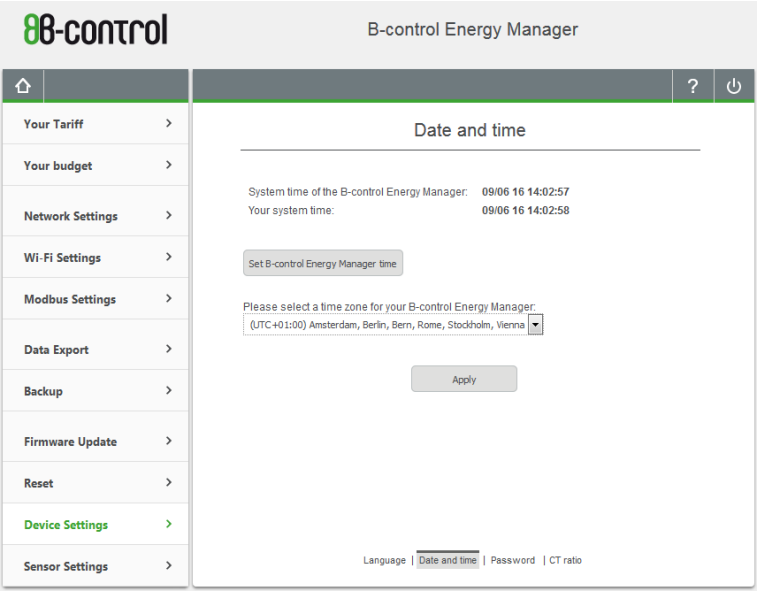
To do this, select the desired entry in the option fields and press the “Apply” button to confirm the settings.

12.11.2 DATE AND TIME

The system time of your B-control Energy Manager must be set correctly.

You should thus check the date and time on your PC before setting the time here. The Energy Manger will take the date and time from your PC.

Then press "Apply" to confirm your settings.



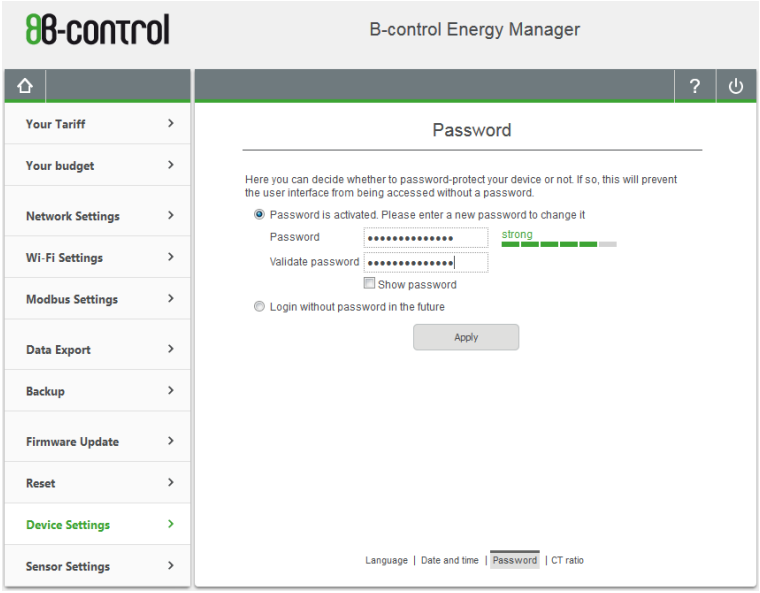
Note

If you connect your Energy Manager permanently with the Internet via the network, you can also activate a function in the Settings menu, at "Network settings" > "Time server settings" which will ensure that the Energy Manager automatically obtains time and date information (via NTP) from the Internet (see section 12.6.3.2 on page 58).

12.11.3 PASSWORD

This menu is used to define a log-in password or to deactivate the log-in with password option. The Energy Manager shows the password strength in a bar chart.

If you deactivate the log-in on the web interface of your Energy Manager, the Energy Manager will go straight to the Home page when called up in the browser.



Note

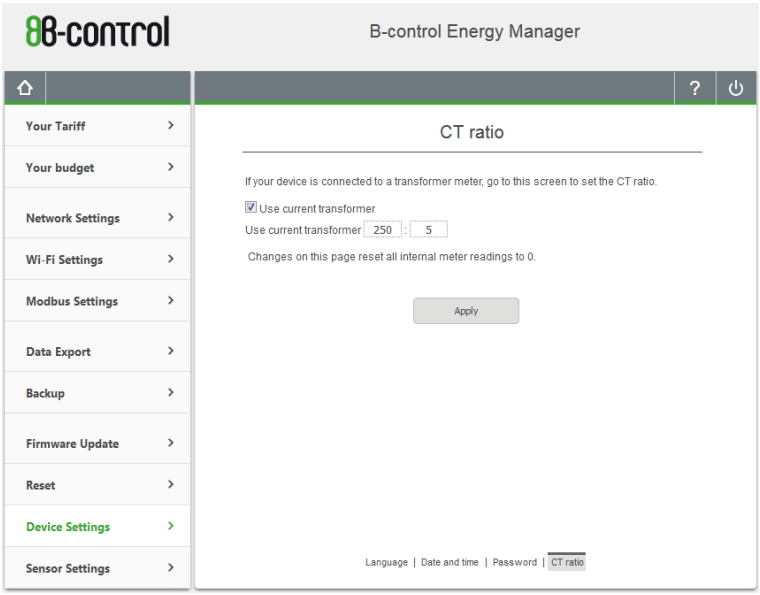
Without a password, your device will not be protected against external access.

If you allocate a password, please make a note of it.

12.11.4 TRANSFORMER RATIO

The Energy Manager can measure up to 63 A directly for each outer conductor. External transformers are used for higher currents. Nominal currents of 100, 150, 250 or even 500 A are typical.

This menu is used to enter the transformer ratio.



Please note

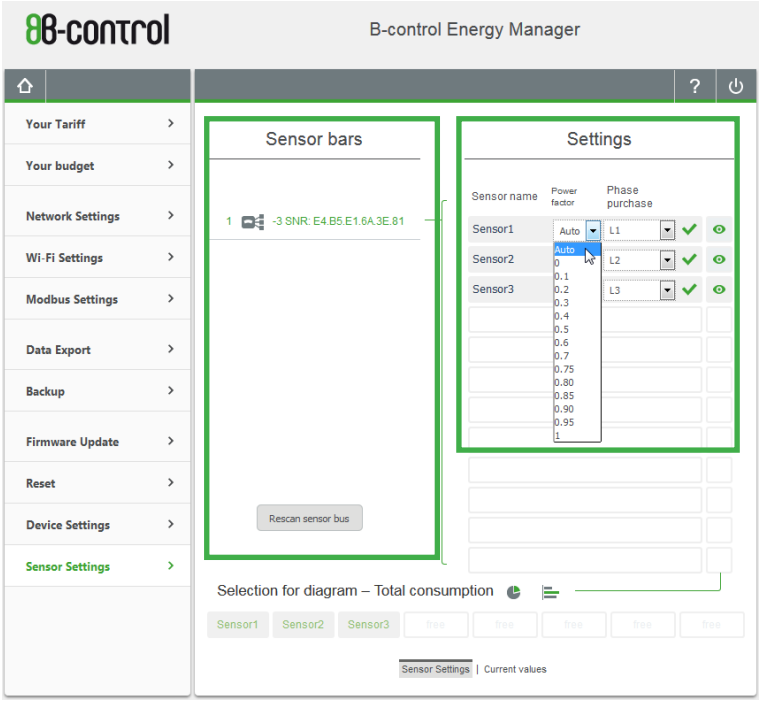
If you make a change to the configuration on this page, for example by activating or deactivating a transformer ratio or by changing the actual ratio, the current meter readings will be reset to 0 and recording will start again from this time.
All historical values collected up until the change are retained in the database and thus also in the statistics and export files.

12.12 SENSOR SETTINGS

This menu is used to configure the sensor bars and the connected current sensors.

12.12.1 SENSOR SETTINGS

All detected sensor bars are listed in the "Sensor bars" column. Newly connected sensor bars can be identified with the "Rescan sensor bus" button.

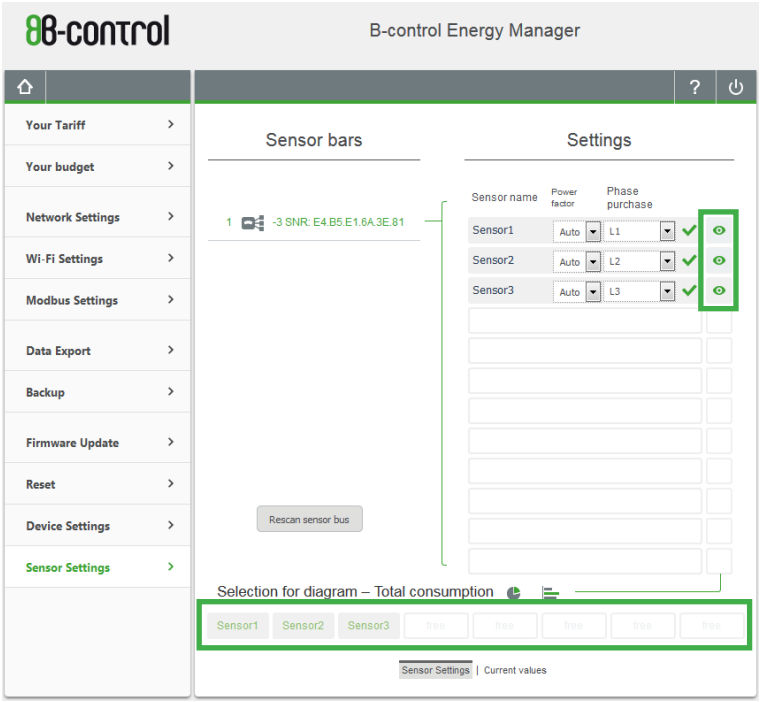


The "Settings" column shows all the current sensors for the selected sensor bar, up to 12 current sensors per sensor bar. You can allocate to each current sensor a certain phase and an individual power factor for analysis purposes. In "Automatic" mode, the value of the Energy Manager is used for the sensors. The corresponding phase is taken into

account in the calculation. If the Energy Manager has no power connection, the value will need to be entered manually.

Sensors allocated to a specific phase are marked with a green tick.

You can choose which current sensors are to be integrated into the "Chart - total consumption" (see section „12.2.3 Overview in bar diagram“ on page 45). Click on the box to the right of each current sensor. A green "eye" indicates that the current sensor is included in the "Chart - total consumption". Up to 8 channels can be selected. The selected current sensors and their names are listed along the bottom of the window.



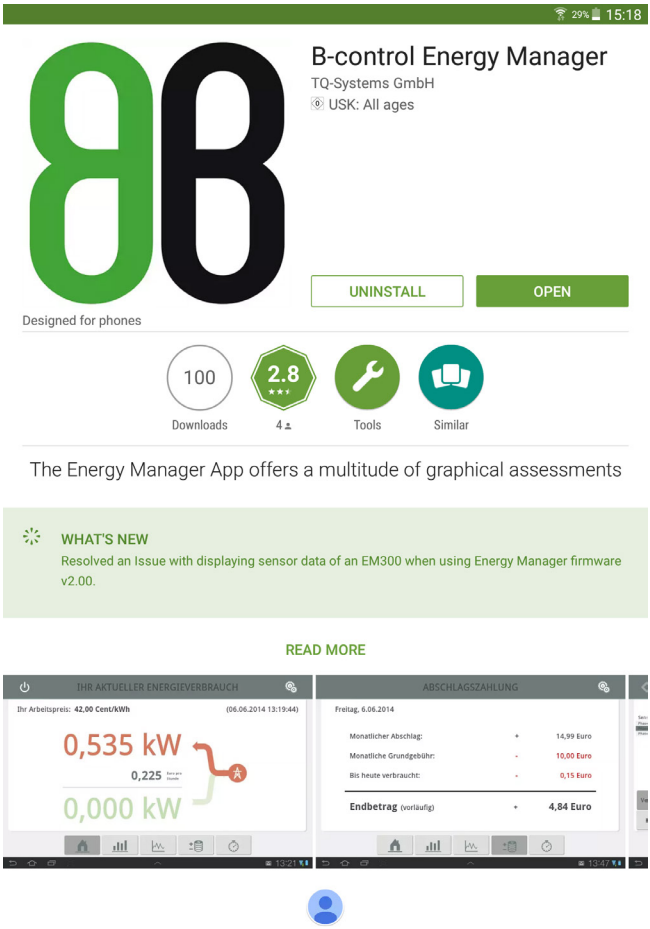
12.12.2 CURRENT VALUES

See section „12.3.2 Overview – Current values“ on page 48.

13 B-CONTROL ENERGY MANAGER APP

In addition to the web interface, the B-control Energy Manager apps for Android and iOS are available for free download to your smartphone or tablet.

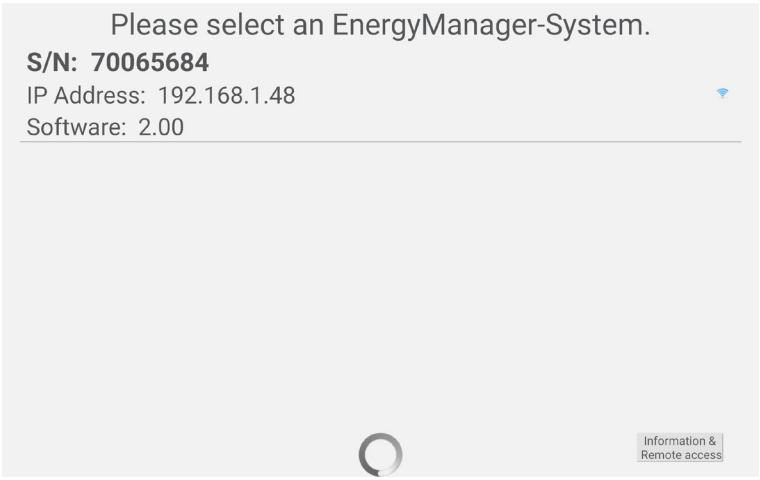
Enter "b-control" as a search term in the App Store or Google Play Store and download the "B-control Energy Manager" app.



13.1 STARTING THE B-CONTROL ENERGY MANAGER APP

The B-control app is available to you after successful installation.

Start the B-control app, then select the Energy Manager to be allocated a serial number and IP address. If you have installed several Energy Managers in the same network, they will all be listed here.



Note

The screenshots in this manual come from the Android app. All explanations and notes apply to both the Android app and the iOS app.

13.2 REMOTE ACCESS / OFFLINE MODE

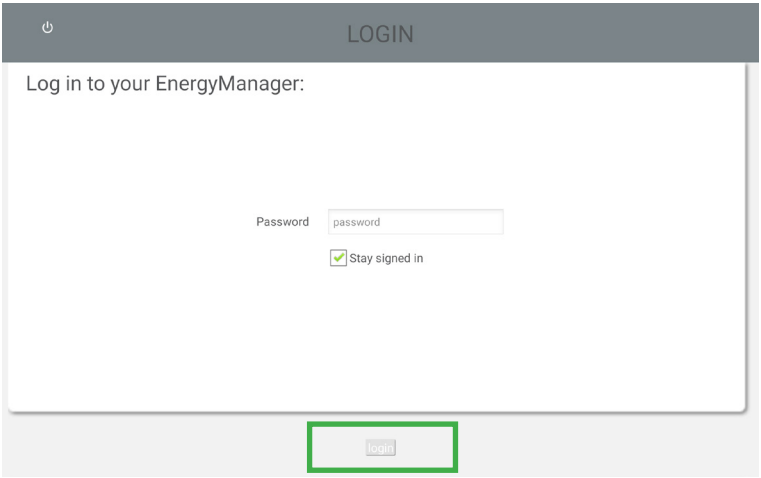
If the app is unable to find an Energy Manager in the local network, it is possible to start the app in offline mode or to connect to the Energy Manager by remote access.

Note

The remote access must be configured via the app (see also section „13.6.1 Configuring remote access“ on page 98).

13.3 LOGGING INTO THE ENERGY MANAGER

Once you have selected the desired Energy Manager, the log-in screen appears.

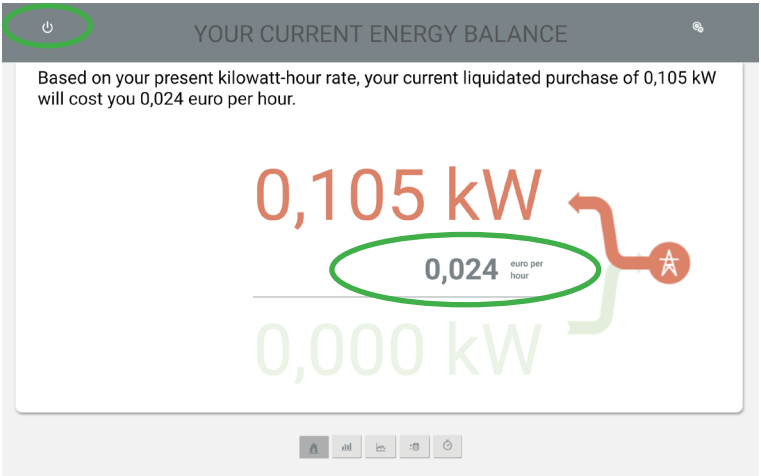


Enter the password for the Energy Manager that you chose during initial start-up (see section „11.1 Password protection“ on page 27) or assigned in the device settings (see section „12.11.3 Password“ on page 86). Click on “Login”.

13.4 USER INTERFACE – HOME

Once you have successfully logged into the Energy Manager, the Home screen appears. The Home menu of your Energy Manager provides an overview of the current power consumption and feed-in values and the resulting costs.

Click the "Exit" symbol in the left top corner to log out of the Energy Manager.

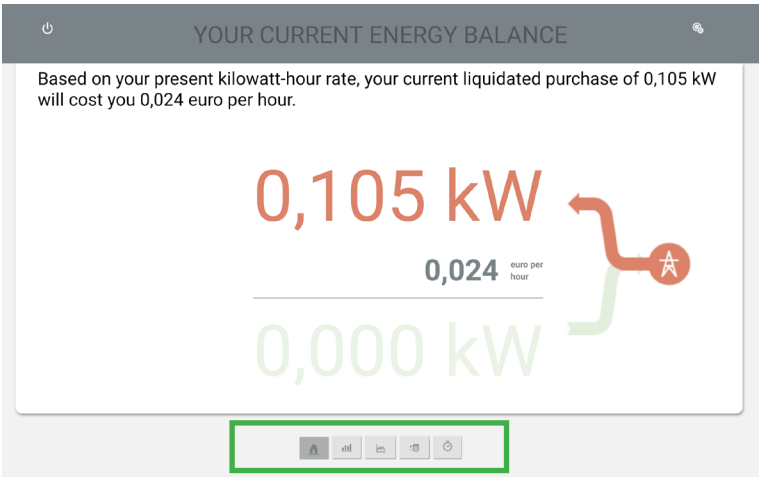


The power consumption costs may be converted to the intervals “Hour”, “Day”, “Week”, “Month” or “Year” by selecting the cost indicator.

13.5 USER INTERFACE – OTHER MENUS

There are five buttons for calling up other menus along the bottom edge.

Their functions correspond to the relevant menus of the web interface.



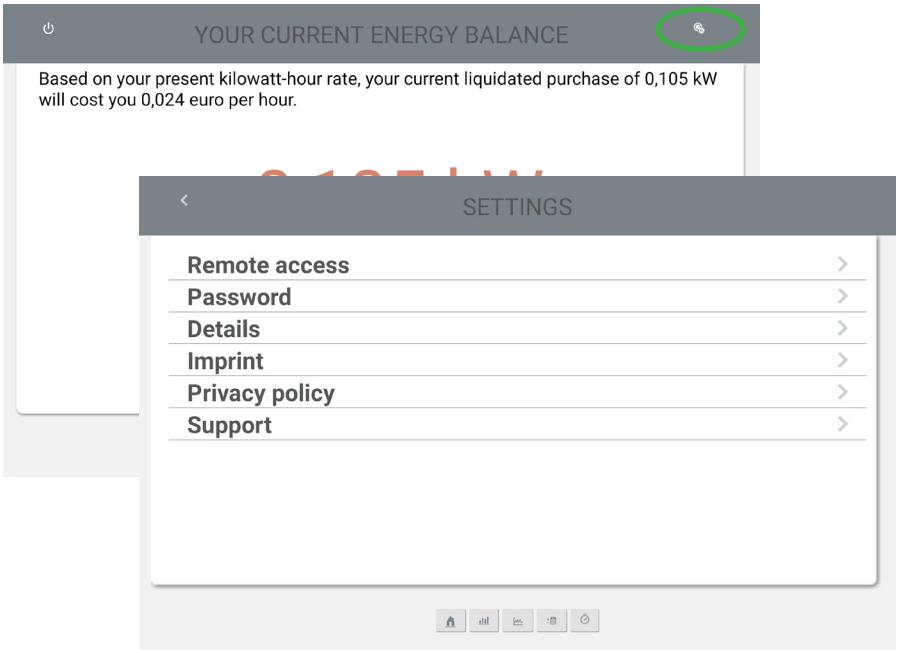
- Home (see section „12.1 Home“ on page 40)
- Statistics (see section „12.2 Statistics“ on page 41)
- Current values (see section „12.3 Current values – Showing the power consumption in real time“ on page 47)
- Your budget (see section „12.4 Your budget“ on page 51)
- Energy stop watch (see section „12.5 Energy stop watch“ on page 53)

13.6 SETTINGS

You will find the "Settings" symbol in the top right corner of the app.

The scope of configuration in the app is limited compared to the web interface.

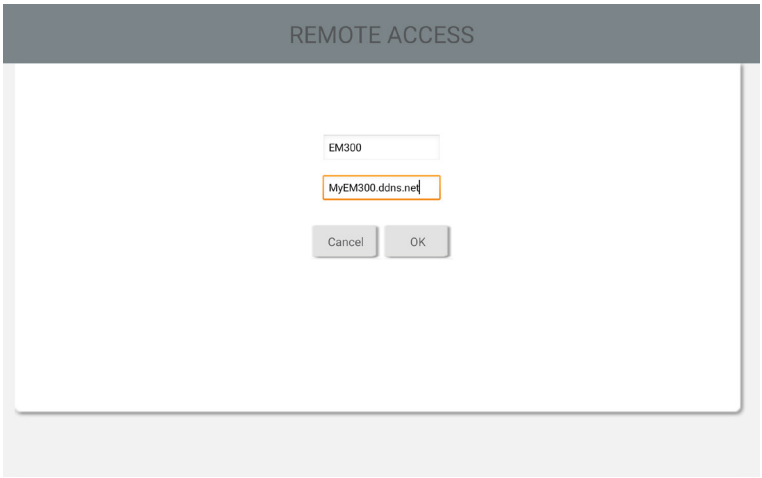
You can use it to set up remote access and to activate or deactivate the password protection of the Energy Manager.



You will also find information about the version of the B-control app under "Details".

13.6.1 CONFIGURING REMOTE ACCESS

The app enables you to set up the name and address for remote access to the Energy Manager. This allows you to access the web interface or app from outside. This requires an account to have been set up with a DDNS provider.



Note

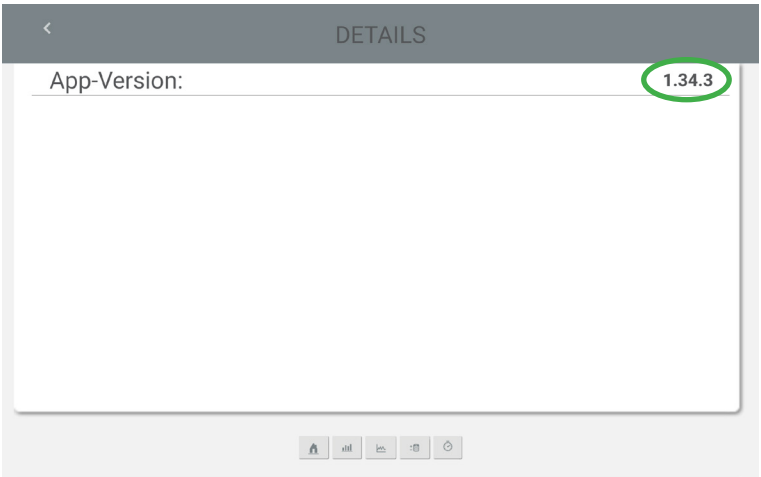
You must set up the DDNS access in your router by specifying the access data of your DDNS provider: host name, user name and password. Port routing must also be set up for the router from an external port to an internal port 80 – this rule should only be set up for the IP address of the Energy Manager.

13.6.2 PASSWORD

This menu is used to change the password settings (see section „12.11.3 Password“ on page 86).

13.6.3 DETAILS

You will find the version of the app you have installed on your device on the information page.



14 CONTACT AND SUPPORT

If you have technical problems with our product, please contact the service division of TQ-Systems GmbH.

We will need the following information to be able to give you specific help:

- Type and serial number of the Energy Manager
- Description of the fault

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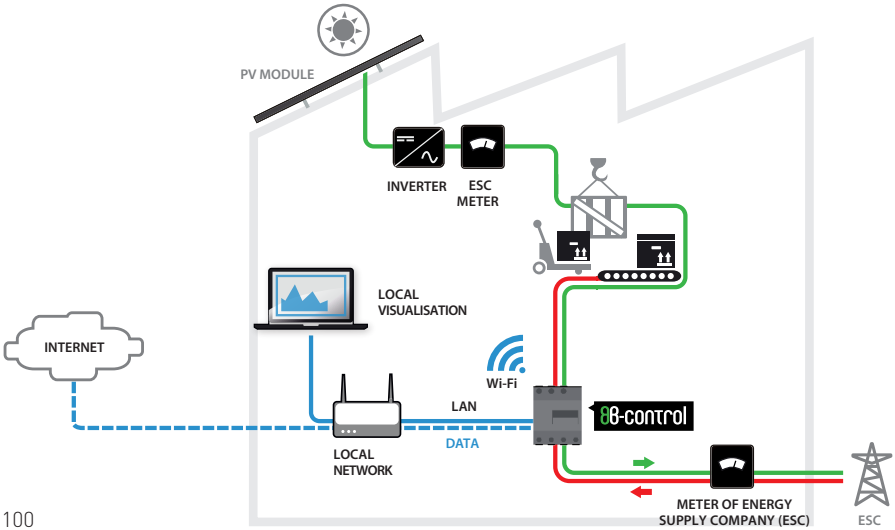
Fax: +49 (0)8153 9308-4223

Support by e-mail: support@b-control.com
Internet: www.b-control.com



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