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ABB Smart Energy Management

EX.1 Energy Edge



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1 Notes on the instruction manual

Please read through this manual carefully and observe the information it contains. This will assist you in preventing injuries and damage to property and ensure both reliable operation and a long service life for the device.

Please keep this manual in a safe place.

If you pass the device on, also include this manual along with it.

ABB accepts no liability for any failure to observe the instructions in this manual.

If you require additional information or have questions about the device, please contact ABB or visit our Internet site at:

<https://new.abb.com/en>

2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent hazards of this kind.

ABB accepts no liability for any failure to observe the safety instructions.

2.1 Information and symbols used

The following Instructions point to particular hazards involved in the use of the device or provide practical instructions:



Danger

Risk of death / serious damage to health

- The respective warning symbol in connection with the signal word "Danger" indicates an imminently threatening danger which leads to death or serious (irreversible) injuries.



Warning

Serious damage to health

- The respective warning symbol in connection with the signal word "Warning" indicates a threatening danger which can lead to death or serious (irreversible) injuries.



Caution

Damage to health

- The respective warning symbol in connection with the signal word "Caution" indicates a danger which can lead to minor (reversible) injuries.



Attention

Damage to property

- This symbol in connection with the signal word "Attention" indicates a situation which could cause damage to the product itself or to objects in its surroundings.



NOTE

This symbol in connection with the word "Note" indicates useful tips and recommendations for the efficient handling of the product.



This symbol alerts to electric voltage.

2.2 Intended use

The EX.1 Energy Edge is used for manufacturer-independent networking of all large energy generators and consumers in residential buildings such as single-family houses and multiple dwelling houses. It is used in private networks. The ABB energy management platform makes it possible to optimise energy consumption based on forecasts, tariffs and other services.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use” on page 6 is deemed improper use and can lead to personal injury and damage to property.

ABB is not liable for damages caused by use deemed contrary to the intended use of the device. The associated risk is borne exclusively by the user/operator.

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Outdoor use
- The use in bathroom areas
- Insert with an additional bus coupler

2.4 Target group / Qualifications of personnel

2.4.1 Operation

No special qualifications are needed to operate the device.

2.4.2 Installation, commissioning and maintenance

Installation, commissioning and maintenance of the device must only be carried out by trained and properly qualified electrical installers.

The electrical installer must have read and understood the manual and follow the instructions provided.

The electrical installer must adhere to the valid national regulations in his/her country governing the installation, functional test, repair and maintenance of electrical products.

The electrical installer must be familiar with and correctly apply the "five safety rules" (DIN VDE 0105, EN 50110):

1. Disconnect
2. Secure against being re-connected
3. Ensure there is no voltage
4. Connect to earth and short-circuit
5. Cover or barricade adjacent live parts

2.5 Cyber security

The industry faces intensifying cyber security risks. In order to increase stability, safety and robustness of its solutions, ABB has formally established cyber security robustness testing as part of the product development process.

The following measures are prerequisite for the safe operation of your system. ABB accepts no liability for non-observance.

Access control and limitation

The careful isolation of the system against unauthorized access is the basis for every protective concept. Only authorized persons (fitter, caretaker, tenant) are allowed physical access to the IP network or bus system and its components. This also includes the device described in this instruction manual.

The best possible protection of the IP or network media (WLAN) and the transfer nodes must be guaranteed already during planning and installation. Sub-distributions with fieldbus devices must be lockable or be in rooms to which only authorized persons have access.

Bus cabling

- The ends of the bus cables must not be visible, i. e. they must not project out of walls or channels, either inside or outside of the building.
- Bus cables in outdoor areas or in areas with limited protection represent an increased safety risk. The physical access should be made exceptionally difficult.

IP Network

The local network represents a sensitive component for secure communication. That is why unauthorized access to the local network should be prevented. The normal safety mechanisms for IP networks are to be used, e. g.:

- Secure encryption of wireless networks
- Use of complex passwords and protection of these against unauthorized persons
- Physical access to network interfaces (Ethernet interfaces) and network components (router, switches) should only be possible in protected areas.
- MAC filter (table with certified device addresses)

Connection to the Internet or the local IP network

To prevent improper use, no router ports from the Internet into the building network or home network are to be opened to the EX.1 Energy Edge.

The stable and reliable function of the device also depends on the reliability of the local IP network to which the server is connected. For this reason, additional network components are to be used to repel the DoS attacks (denial of service) from the Internet. Such attacks can overload the local IP network or the individual components and make them inaccessible.

Safety of user accounts

Set a strong access password during initial commissioning. Use passwords that you have received from the administrator only for the first login.

Keep passwords secret and use a password manager with two-factor login as memory aid, e. g. Keepass.

Updates

The device supports different update options. A detailed overview is available in Chapter 10 "Update" on page 60.

Restoration

The customer data of a EX.1 Energy Edge system is synchronised live in the cloud at all times. If the hardware is defective, the data from the cloud can be migrated onto a new device without loss of data.

Solutions for protection against malware

The product is not susceptible to malware, because a user-defined code cannot be executed on the system. The only option of updating the software is the update of the firmware. Full device updates are signed. Smaller application updates are not signed but only transferred via a secure channel.

Password rules

The EX.1 Energy Edge is a pure web application. The local API can be activated by the end customer in the cloud - either unsecure (HTTP) or secured/encrypted (HTTPS). In both cases optionally an API key as authentication can be used. All data is synchronised via the web/cloud.

The device comes with a unique ID which is used to connect it to the cloud. All relevant passwords are set via ProService Portal and MyBuildings. Make sure to use strong passwords.

2.6 Safety instructions



Danger - Electric voltage!

Electric voltage! Risk of death and fire due to electric voltage of 100 ... 240 V. Dangerous currents flow through the body when coming into direct or indirect contact with live components. This can result in electric shock, burns or even death.

- Work on the 100 ... 240 V supply system may only be performed by authorised and qualified electricians.
- Disconnect the mains power supply before installation / disassembly.
- Never use the device with damaged connecting cables.
- Do not open covers firmly bolted to the housing of the device.
- Use the device only in a technically faultless state.
- Do not make changes to or perform repairs on the device, on its components or its accessories.
- Keep the device away from water and wet surroundings.



Caution! - Risk of damaging the device due to external factors!

Moisture and contamination can damage the device.

- Protect the device against humidity, dirt and damage during transport, storage and operation.

3 Information on protection of the environment

3.1 Environment



Consider the protection of the environment!

Used electric and electronic devices must not be disposed of with domestic waste.

- The device contains valuable raw materials which can be recycled.
Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.

(EU Directive 2012/19/EU WEEE and 2011/65/EU RoHS)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006).

4 Product Overview

The EX.1 Energy Edge in combination with the ABB Smart Energy Management is used for the manufacturer-independent networking of all large energy producers and consumers in the building. The ABB Smart Energy Management platform allows for the optimisation of energy consumption in the best possible way based on forecasts, tariffs and other services.



Fig. 1: Product overview

With the ABB Smart Energy Management platform, you can reduce your electricity consumption. The ABB Smart Energy Management platform individually controls large energy consumers to utilise energy as economically and cost-effectively as possible.

The bidirectional integration of numerous heat pumps enables above-average heat storage of energy in the building. Predictive control optimises self-consumption and increases self-sufficiency.

Thanks to the seven different charging modes, you can conveniently control your electric car from anywhere at any time using PV and tariff-optimised charging. The ABB Smart Energy Management platform supports bidirectional charging and already has vehicle-to-home systems in operation.

The platform is manufacturer-independent and connects all commercially available inverters, storage systems, charging stations, heat pumps, water heating systems and more. Control takes place within a single app.

The ABB Smart Energy Management platform consists of the EX.1 Energy Edge, the Energy Web View and two smartphone app variants (professional and end user). The Energy Web View also allows for easy access to all configuration settings of the ABB Smart Energy Manager app.

The ABB Smart Energy Management platform:

- monitors the energy production of the solar system – regardless of the manufacturer.
- controls connected loads depending on the availability of solar power.
- controls loads via the IP interface, cloud connection, IP relays with potential-free contacts or intermediate switching plugs.
- has load management for charging stations and monitors the house connection.
- has a clearly arranged app with consumer data as well as an operation and configuration menu for connected devices.
- has a RS-485 interface for devices that uniquely communicate via Modbus RTU.
- has an analogue output for direct control of 0-10 V thyristor controllers.
- has 2 digital inputs (terminals 7/8/9) and 2 digital outputs (terminals 10/11/12) for load shedding (after configuration), see Chapter 5.2 “Circuit diagrams“ on page 16.

4.1 Scope of supply

The scope of supply comprises the following components:

- EX.1 Energy Edge

4.2 Additional necessary components

- 24 V DC Power supply
 - Recommended power supply: CP-D 24/0.42

5 Technical data

Designation	Value
Power supply (SELV)	24 VDC (+10% / -20 %), 630 mA (max.)
Switching capacity (resistive load only)	
Digital output 1 AC or Digital output 2 AC	4 A (max.)
Digital output 1 AC and Digital output 2 AC	8 A (max.)
Digital output	230 VAC
Output fuse protection	16 A circuit breaker
Mounting	DIN rail mounting, 4 division units (35 mm DIN rail)
Ethernet interface	1 x GBit, 1 x RJ45
Serial interface	1 x RS485, galvanically isolated
Connection terminals	0.2 mm ² ... 1.5 mm ² fine-wire 0.2 mm ² ... 1.5 mm ² single-wire
Stripping length	8.5 ... 9.5 mm
Operation temperature	0 ... +55 °C
Storage temperature	-35 ... +70 °C, without condensation
Protection class	IP20

Tab.1: Technical data

5.1 Dimensional drawings

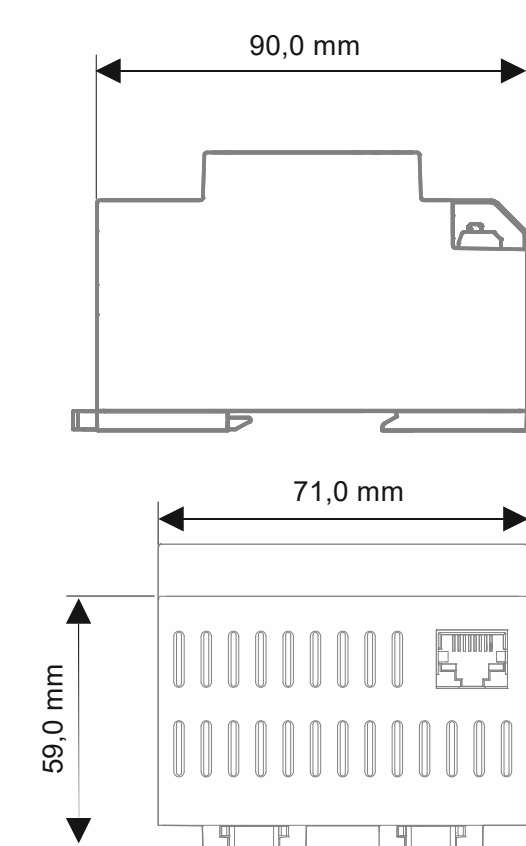


Fig. 2: Dimensions

All dimensions in millimeters.

5.2 Circuit diagrams

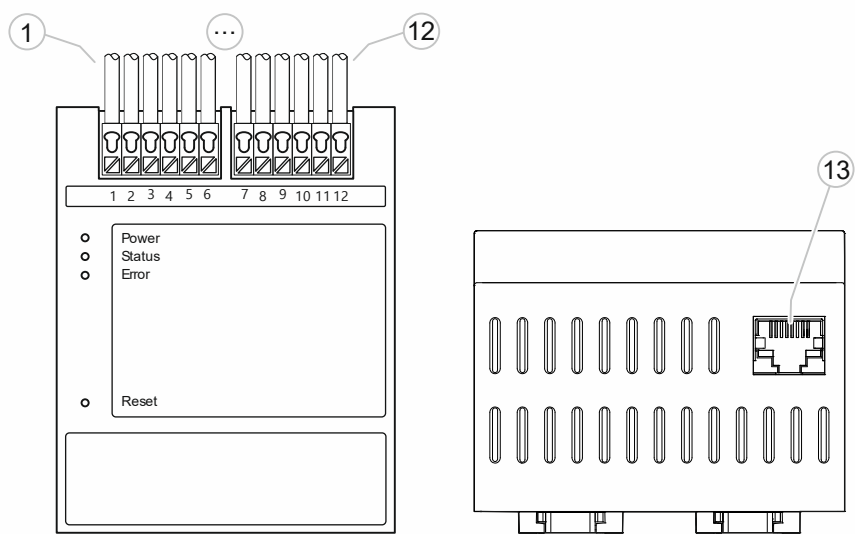


Abb. 3: Wiring diagram

No	Designation
Serial interface	
1	RS 485 GND
2	RS 485 A
3	RS 485 B
Analog output	
4	Analog output, 0 ... 10 V
Power supply	
5	GND
6	+24 V DC
Digital input	
7	Digital input 2, 230 V AC
8	Digital input common, 230 V AC
9	Digital input 1, 230 V AC
Digital output	
10	Digital output 1, 230 V AC, 4 A (max.)
11	Digital output common, 230 V AC, 8 A (max.)
12	Digital output 2, 230 V AC, 4 A (max.)
Ethernet	
13	LAN connection



Note
The EX.1 Energy Edge must be in the same network as the connected components.

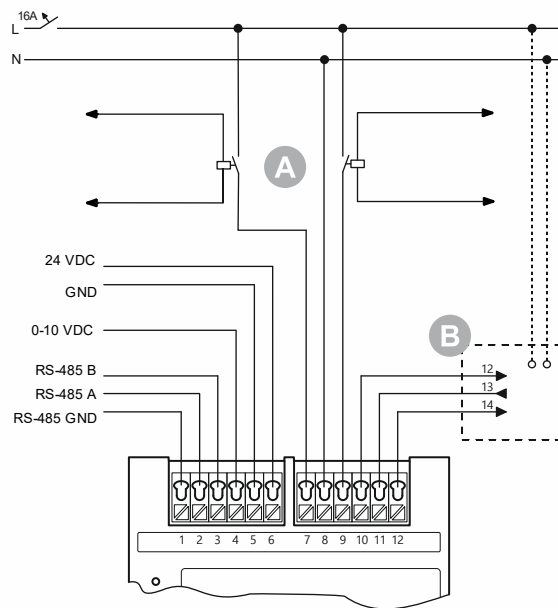


Abb. 4: Digital inputs / Heat pump control

[A] Control of digital inputs with switching relays

[B] Heat pump control (Smart Grid Ready)



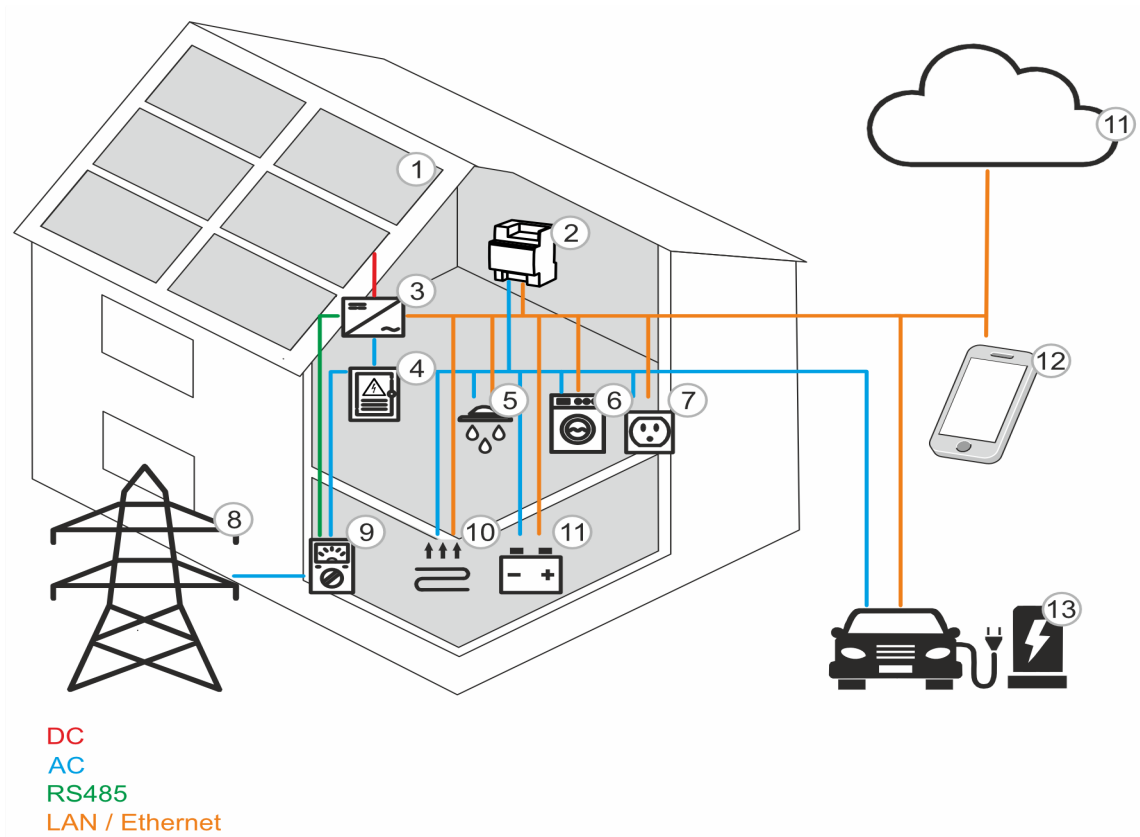
Note

Only resistive loads may be connected to the digital outputs.

6 Connection, installation / mounting

6.1 Installation example

The following illustration shows a typical installation of the ABB Smart Energy Management platform.



Pos.	Description
[1]	Solar system
[2]	EX.1 Energy Edge (Gateway)
[3]	Inverter (E. g. Fronius, SolarEdge, Kostal or SMA)
[4]	Sub-distributor
[5]	Boiler with water heater (E. g. myPV ELWA-E or myPV ACThor)
[6]	Household appliances
[7]	Smart plug
[8]	Mains
[9]	Home consumption metering (E. g. Fronius, SolarEdge or Expert Net Control 2312-1)
[10]	Heating system (E. g. Heat pump Alpha Innotec Luxtronic 2.0)
[11]	Battery

Pos.	Description
[12]	Tablet or smartphone (used for visualisation)
[13]	Car charging station (E. g. Keba P30 / P20)

Tab. 2: Example installation

6.2 Safety instructions



Danger - Electric voltage!

Risk of death due to electrical voltage of 100 ... 240 V during short-circuit in the low-voltage conduit.

- Low-voltage and 100 ... 240 V conduits must not be installed together in a flush-mounted box!

6.3 Requirements for the electrician



Danger - Electric voltage!

Install the device only if you have the necessary electrical engineering knowledge and experience.

- Incorrect installation endangers your life and that of the user of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:

- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
 1. Disconnect
 2. Secure against being re-connected
 3. Ensure there is no voltage
 4. Connect to earth and short-circuit
 5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

6.4 Mounting / dismantling

The modular DIN rail component must only be installed on mounting rails according to DIN EN 50022 / DIN 60715 TH 35 (including industrial version).



Note

Check and note down the ABB ID, which can be found on the back of the EX.1 Energy Edge before you install the device on the mounting rail.

Installation

To install the device, perform the following steps:

1. Latch the modular DIN rail component onto the mounting rail [1].
2. Push the latches upwards with the aid of a screwdriver [2].

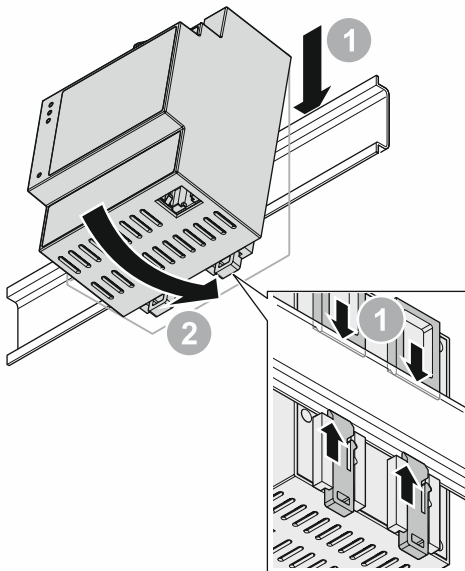


Fig. 5: Installation on mounting rails

Dismantling

To dismantle the device, perform the following steps:

1. Pull the latches down with the aid of a screwdriver [1].
2. Press the device upwards and then fold it towards the front [2].

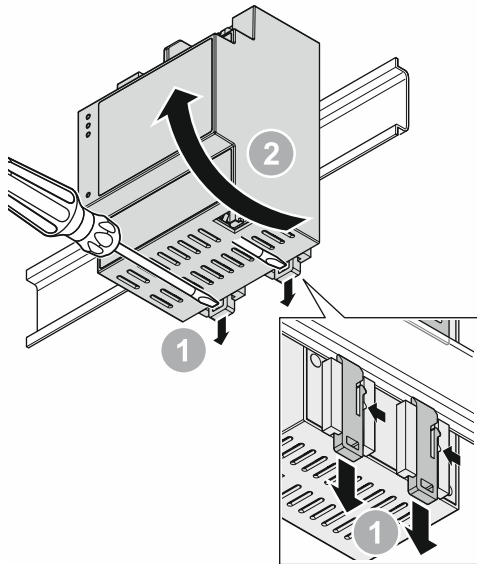


Fig. 6: Removal from the mounting rails

6.5 Electrical connection

Please observe the following sequence when installation the EX.1 Energy Edge.

1. Add the EX.1 Energy Edge to the distribution cabinet by mounting it on the top-hat rail (see chapter 6.4 "Mounting / dismantling" on page 21).
2. Install the 230 ... 230 V power supply (SELV) (see chapter 5.2 "Circuit diagrams" on page 16).
3. Install the 24 V DC power supply (see chapter 5.2 "Circuit diagrams" on page 16).
4. Connect the power supply to the mains supply.
5. Connect the power supply to the EX.1 Energy Edge.
6. Connect the EX.1 Energy Edge to the LAN connection of your building.
7. Connect the EX.1 Energy Edge to your individual interfaces.



Note

The terminal designation is located on the housing.

Supply voltage U_s

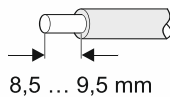


Fig. 7: Stripping length

Stripping length: 8,5 9,5 mm

6.5.1 Connecting the devices

All devices that are to be connected to the EX.1 Energy Edge can be either integrated via LAN or via one of the corresponding connectors of the device. E. g. Modbus RTU or digital inputs and outputs.

For further information regarding the connection via Modbus RT or digital inputs/outputs, see chapter 6.5 "Electrical connection" on page 23.

As the integration process may vary depending on the manufacturer and device, detailed instructions can be found at: <https://abbag.zohodesk.eu/portal/de/kb/test>

7 Commissioning

7.1 Commissioning procedure

The EX.1 Energy Edge is part of the ABB Smart Energy Management platform at MyBuildings.

Before initial commissioning, the installer must create a professional account on the ProService Portal (<https://proservice.mybuildings.abb.com/abb/>).

To start the configuration professional and end user must create a MyBuildings account or use an existing MyBuildings account. This step is common for both groups before they can start their dedicated flow in either MyBuildings or ProService Portal.

Professional

1. Create a professional account on ProService Portal or log in with your access data.
2. Register the EX.1 Energy Edge in the ProService Portal. There are two options for registration:
 - [A] Enter the associated ABB ID which can be found on the back of the device.
 - [B] Scan the QR code which can be found on the front of the device.
3. Start configuration of the EX.1 Energy Edge.

End user

1. Create an end user account on MyBuildings.
2. To start your ABB Smart Energy Management solution, you will receive an invitation e-mail from your professional.
3. Follow the link in the e-mail and follow the registration flow.
4. Install the app on your smartphone or tablet and log in with the access data from your MyBuildings account.

7.2 Registration and user accounts

The ABB Smart Energy Management platform is intended for the two customer groups "Professional" and "End user". Both customer groups register their account on MyBuildings and select their role accordingly (professional or end user).

- The end user can use their account directly.
- The professional logs in with their account on ProService Portal and confirms his company.

The end customer can use this account directly whereas the professional's account and company must be authorised first.

7.2.1 Registration as professional

Registering

1. Open the ProService Portal (<https://proservice.mybuildings.abb.com/abb/>).

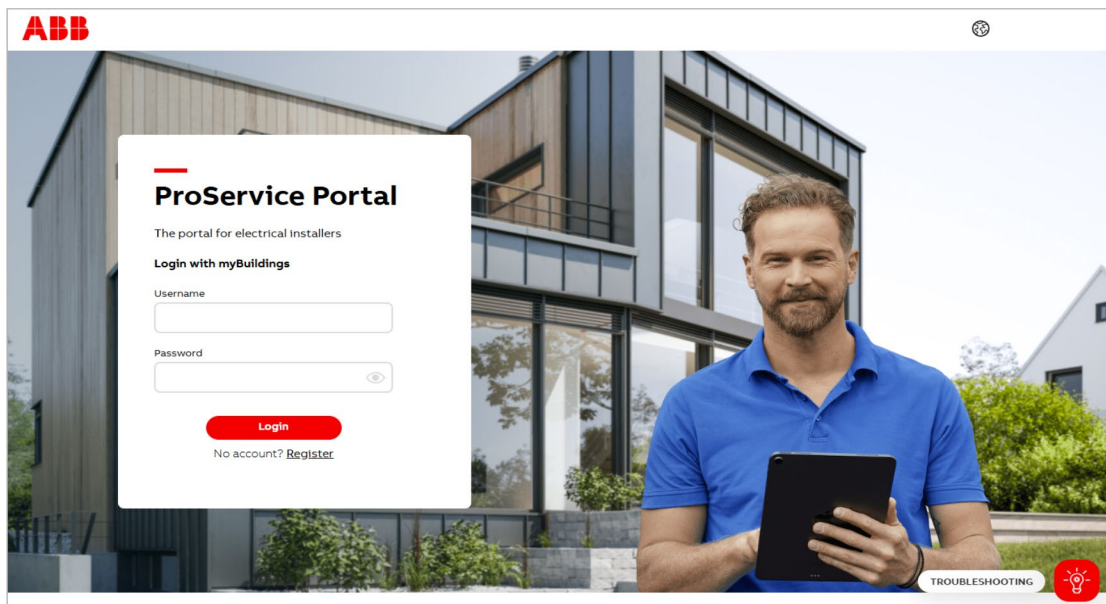


Notice

If you do not yet have a MyBuildings account, click on “Register”, see chapter 8.1.2 “Registration as end customer” on page 33.

2. Log in to MyBuildings with your login data.

In case you have not yet created a company:



3. Select “Register”, then fill out the form and confirm your details with “Register”.
 - Afterwards you will receive an email with instructions on how to activate your account. The activation link in the email is valid for 1 hour.

Activation

To activate access to the installer portal, perform the following steps.

1. Open the e-mail you have received from the ProService Portal after the check and approval.
2. In the e-mail, click on the link "Click here to complete the details of your company".
3. Complete the missing information about your company.
The fields marked by a star are mandatory fields.
4. Click on "Save".

A confirmation appears and your access to the installer portal is activated. You can now add customers and employees.

In case you have already created a company:

- The customer overview opens. From here you can manage existing customers or invite additional customers.



Notice

A detailed description of the user management registration is available in the document "HowTo Pro Service Portal".

7.2.1.1 Additional functions

The ProService Portal serves as maintenance and service platform. The following additional functions and settings can be made via the ProService Portal:

- Inviting employees / technicians
- Inviting customers
- Assigning the employees / technicians to a customer
- Commissioning for web-based products, such as:
 - APP-Control Server
 - KNX voice control gateway
 - ABB Smart Energy Management, EX.1 Energy Edge
- Performing remote maintenance / maintenance
 - Overview of the system history
 - Information about device serial numbers, Firmware version and remote control
 - Complete access to the customer user interface
 - Enabling the access by a technician

7.2.2 Register and set up SEMS device via ProService Portal

1. Register to the ProService Portal.
2. After successful registration to the ProService Portal you can add a new device either on the overview page, or by navigating to the „Systems“ tab [1].
3. Press the „Add device“ button.
 - The „New installation“ [2] popup opens.

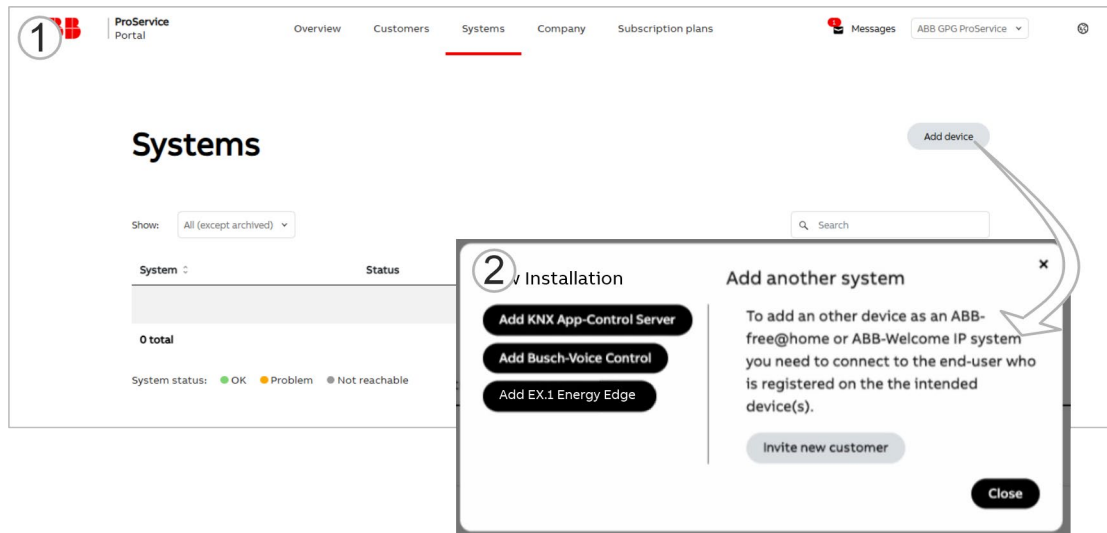


Fig. 8: Menu item "My installation"

4. In the popup, click / tap on „Add EX.1 Energy Edge“.

Fig. 9: Add EX.1 Energy Edge

5. Enter the end customer's email address and the devices' ABB ID (can be found on the back of the device).
6. Confirm the entry by clicking/tapping „Send“.
 - This will result in the end customer receiving an invitation to access the respective device via their web browser.
 - The newly added device appears in the "Systems" tab. To see device details, click on the entry or directly open the web interface with the according button on the left of the entry.
 - As soon as the end customer has accepted the invitation under the user of his own MyBuildings account, he appears in the customer list.

7.2.3 Sending an invitation to the customer

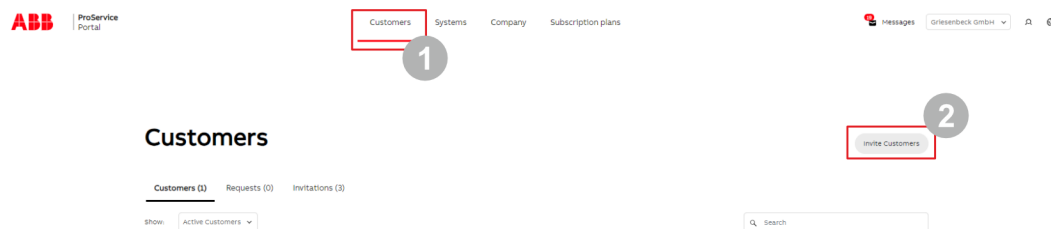
With ABB Smart Energy Management platform, the end customer can always configure and customise the system themselves.

This can be done via MyBuildings > EX.1 Energy Edge > "Manage" > Energy Web View / ABB Smart Energy Manager.



Notice

The device should be appropriately set up before the invitation is sent.



1. To invite a customer, select the "Customer" tab [1].
2. Click on "Invite customer" [2] and enter your customer's email address.
 - As soon as the customer has accepted the invitation under the use of his own MyBuildings account, he appears in the customer list.

8 Initial commissioning via Energy Web View

To commission the EX.1 Energy Edge, it is not necessary for the device to be energised and have an internet connection.

Initial commissioning is therefore also possible if the building in which the EX.1 Energy Edge is installed is still under construction and there is neither power nor internet. The cabling on site can therefore take place independently of the device configuration in the office.

The configuration of the device can take place before the physical installation (see chapter 7.2.2 "Register and set up SEMS device via ProService Portal" on page 27. As soon as the EX.1 Energy Edge has been installed in the building, it retrieves the configuration from the cloud.

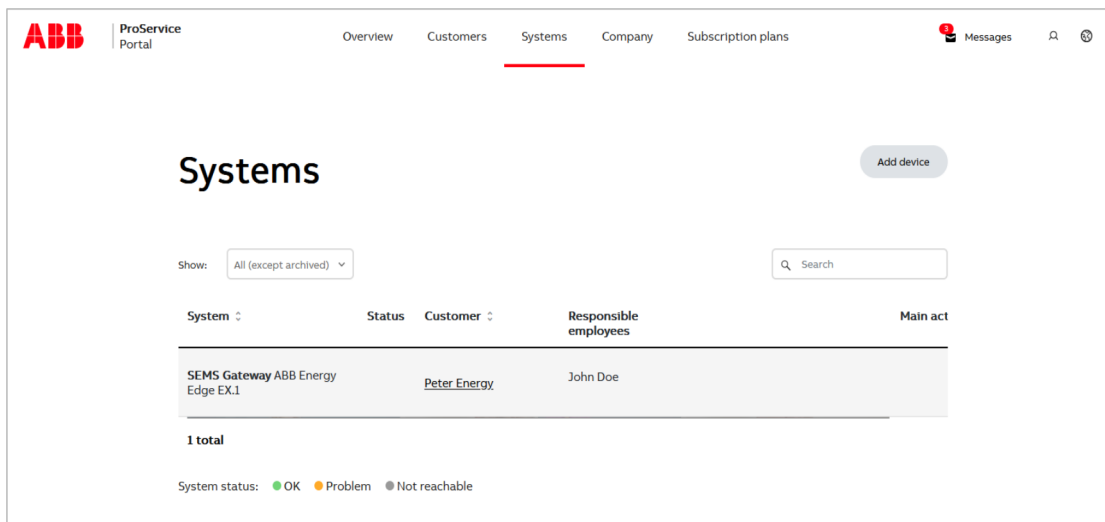
8.1.1 Configure EX.1 Energy Edge device via ProService Portal

When using the device for the first time, general settings must first be made.

1. Set the main parameters.
2. Activate load management for the building.
3. Set parameters of main meter / smart meter.

Access the device settings

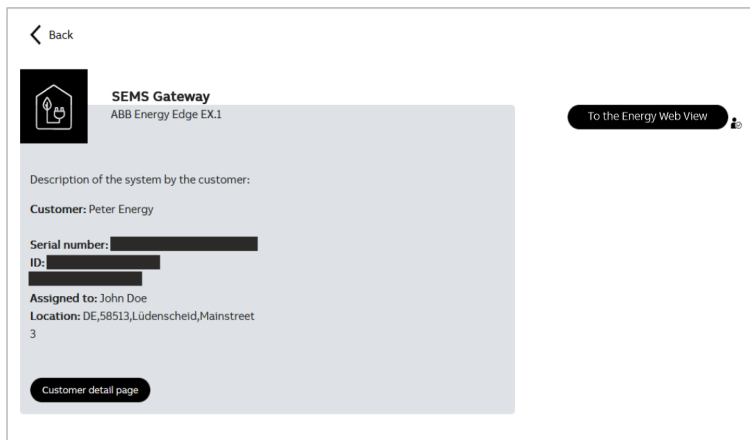
1. Log in to <https://proservice.mybuildings.abb.com/abb/>.
2. Navigate to the "Systems" tab.



3. Select your EX.1 Energy Edge from the list by clicking on the entry.

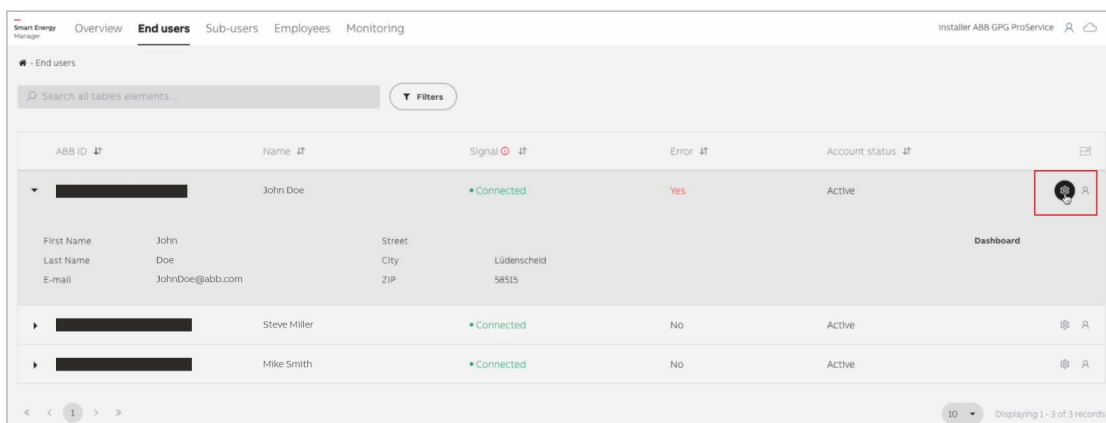
Initial commissioning via Energy Web View

4. In the popup, select the button "To the Energy Web View" to access the device settings.
 - You are forwarded to the Energy Web View platform.



Set Main Meter and Sub-Meter parameters

1. On the Energy Web View platform, navigate to the "End users" tab.
2. Select your device from the list
3. Click the gear wheel on the far right [1].



Initial commissioning via Energy Web View

4. You will be forwarded to the configuration interface.

Smart Energy Manager Overview **End users** Sub-users Employees Monitoring Installer ABB GPG ProService

End users - Settings

END USER INFO **GENERAL SETTINGS** VERSIONS LOCAL API

Offset of the control 50 Watt
DC-power 7 kWp
House fuse 32 Amps
☒ Load management

Tariff Dynamic
Provider Tibber

New Support Case Data Export Import Data

Devices Inverters Smart Meter Cars Input devices Load Guard Add device

Priority	Type	Name	Tag	IP	MAC	Signal	Error	Data
1	Heatpump	Viessman Vitocal 250-A/200- Heat pump		192.168	00:30	Connected		
2	Home Appliances	Home Connect Dishwasher Dishwasher				Connected		
3	Battery	Fronius Hybrid or Gen24 Battery		192.168	00:03	Connected		
4	Energy Measurement	Tasmota flashed Washing machine		192.168	80:7d	Connected		
5	Energy Measurement	Tasmota flashed Heat pump dryer		192.168	cc:50	Connected		

5. In the "General settings" tab [2], click on the edit symbol [3] to configure the parameters of the project, e. g. the house fuse.
6. Activate the checkbox next to "Load management" [4] to protect the electrical infrastructure in your home.
7. In the bottom area, select the "Smart Meter" [5] tab.

In the Smart Meter tab, you can add Smart Meters and Sub-Meters. A Smart Meter is mandatory to make the solution work. Smart Meters serve as a Main Meter for measuring the household to grid.

Sub-Meters are only used in Multi Dwelling cases with Shared Energy, e. g. if your building is a multi-family house for which electricity consumption is billed individually per flat. If you want to add further energy measurement function on the sub-level, you need to add them via the path Devices > Add device > Energy measurement.

Sub-Meters are additional Energy Meters that have to be installed next to the electricity meter of the energy provider (e. g. ABB B23 or ABB D13).

Smart Energy Manager Overview **End users** Sub-users Monitoring Andrea Wagner

End users - Settings

END USER INFO **GENERAL SETTINGS** VERSIONS LOCAL API

Offset of the control 50 Watt
DC-power 7 kWp
House fuse 32 Amps
☒ Load management

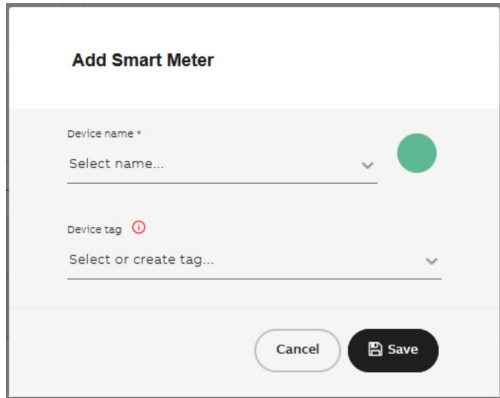
Tariff Dynamic
Provider Tibber

New Support Case Data Export Import Data

Devices Inverters **Smart Meter** Cars Input devices Load Guard Add device

Name	Tag	IP	MAC	Signal	Error	Data
No rows found						

8. Add a **Smart Meter** / **Sub-Meter** by clicking the "Add Smart Meter / Add Sub-Meter" [6] button.
9. In the Smart Meter / Sub-Meter popup, add the right manufacturer and settings.



10. Confirm the settings by clicking "Save".
11. Continue with other energy devices in the other categories.

Example

In most cases a solar system must be added three times.

1. Add the Smart Meter as solar systems usually come with this meter installed.
2. Add a meter under "Inverter".
3. Add a meter under "Devices" -> "Battery" if the system has a battery.

The logic within the ABB Smart Energy Management system is to add these three devices separately and to use the same IP of the inverter for each of them.



Note

You will find HowTo's for each vendor in the knowledge database.

All other energy devices and assets can be added in the corresponding tab / area in a similar way:

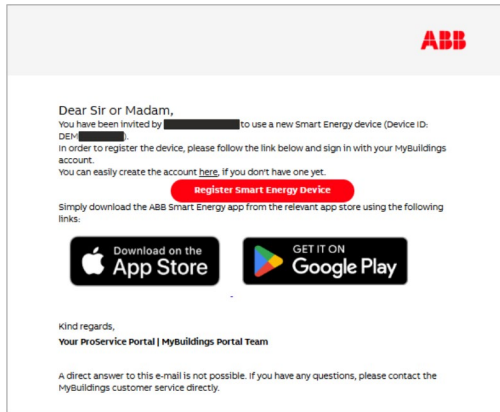
1. Hit "+", choose a device and vendor as described in the previous steps.

As soon as all devices have been connected correctly, the signal from the device switches to "Connected" within 10 to 15 seconds. To update the signal status, you may need to reload the page by pressing F5 or switching between tabs.

8.1.2 Registration as end customer

Registration of a SEMS device as end user

1. Click the link in the email upon receiving your installer's invitation to register your EX.1 Energy Edge device.



2. Log in with your MyBuildings account.
 - If you have not created an account yet, follow the instructions in section “Creation of a MyBuildings account” on page 34.
3. Fill in the registration form and click “Save”.

4. Afterwards the device appears in your Smart Energy Area that you can access via your MyBuildings.
5. To open the web interface, click the tab “My Home”.
 - The EX.1 Energy Edge is shown in the green energy area at the bottom.
6. Click on "Manage" and then the "Energy Web View" button (see chapter 9.1 “Using the Energy Web View (End customer view)” on page 35).
7. To manage your system on your phone, download the ABB Smart Energy Manager app from your app store (the links are in the registration e-mail).
8. Log in with your MyBuildings account.

Creation of a MyBuildings account

To create a MyBuildings account, open the MyBuildings portal under <https://mybuildings.abb.com>.

1. Click on "Register".
2. Be sure to select the customer group "I am an end customer".



Note

It is important that you select the option "I am an end customer" during commissioning.

3. Enter your name, e-mail address and subject-specific information.
4. Set a password and a user name.
5. Confirm the terms of use by clicking on the checkbox.
6. Click on "Register".

To activate the newly created account, you will receive an e-mail to the e-mail address provided.



Note

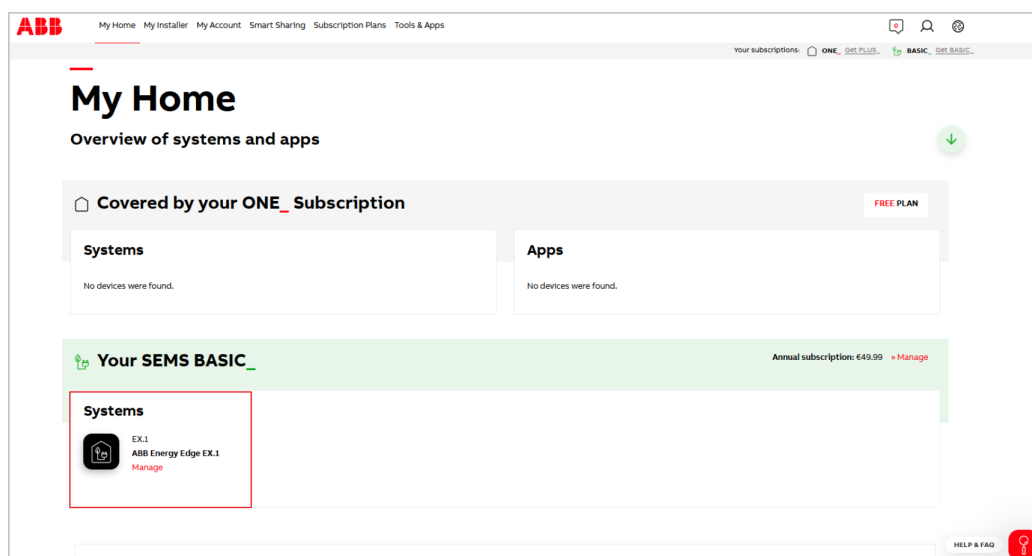
The validity of the activation link in the e-mail ends after one hour, after which you must repeat the registration process.

9 Operation

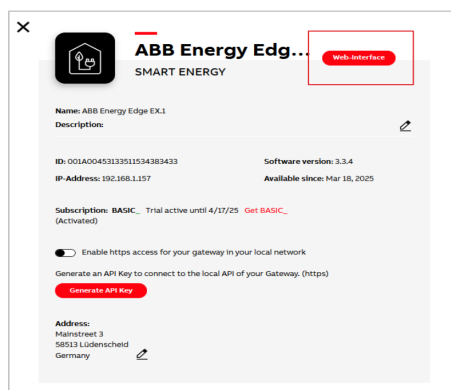
After successful installation and first configuration, all essential data collected by the device can be either accessed via the end user app or the Energy Web View.

9.1 Using the Energy Web View (End customer view)

After the end customer has accepted the invitation for accessing the EX.1 Energy Edge, the device can be accessed via the overview "My Home" in their MyBuildings account.



1. Click on the EX.1 Energy Edge device in the overview of systems and apps.
 - The device overview opens.
2. In the device overview, click "Energy Web View" to access the web interface of your device.



9.2 Overview of the Energy Web View (End customer view)

The Energy Web View shows a dashboard consisting of graphs showing all main assets, consumers and producers as well as analysis regarding figures of consumption and production on a monthly, yearly or historic basis. You can make dedicated changes to which data are shown in the graphs.

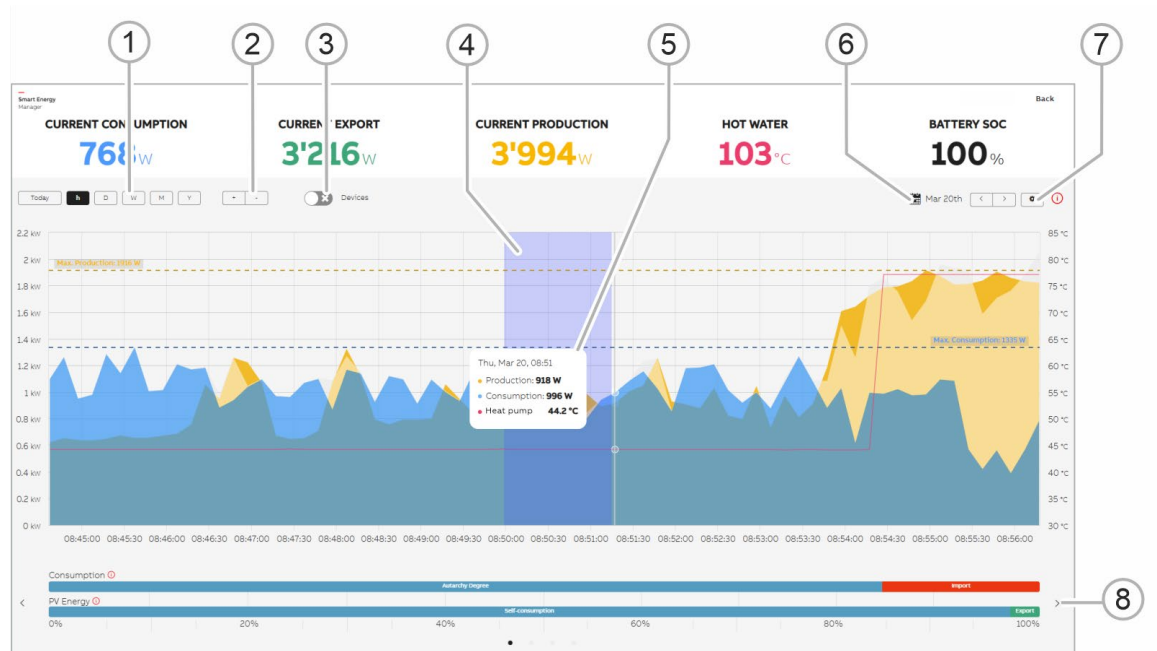


Fig. 10: Functions of the dashboard

Pos.	
[1]	Select resolution (hour, day, week, month, year)
[2]	Zoom (in / out)
[3]	Show / hide devices
[4]	Select an area to zoom into it
[5]	Hover over the graph to get detailed values
[6]	Select a specific day
[7]	Settings, e. g. for displaying the battery charge level
[8]	Change display

Tab. 3: Functions of the dashboard

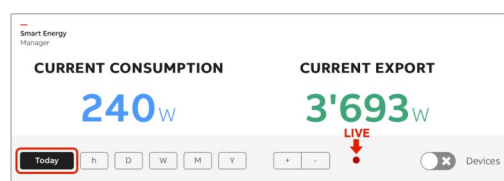


Fig. 11: Live mode

The red dot next to the zoom buttons signalsises that the dashboard is updating itself and shows real time data. You can activate this function via the button "Today" (if the installation is online).

Changing the graph data

1. Click on the gear wheel [7] in the dashboard overview.
 - The chart settings are opened.
2. Activate or deactivate the checkboxes to add or remove devices from the dashboard view.

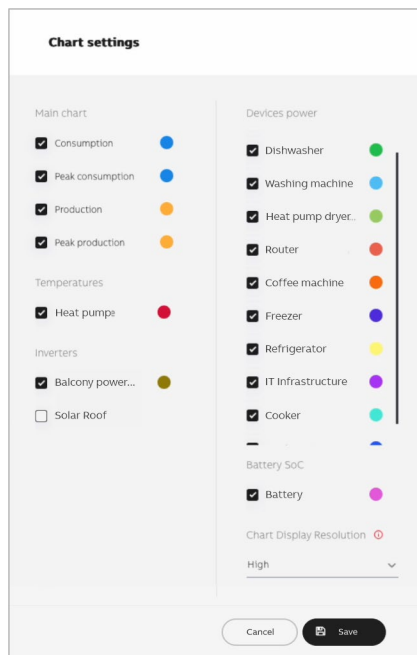


Fig. 12: Chart settings

9.3 Using the ABB Smart Energy Installer app as a professional

**Notice**

The EX.1 Energy Edge must be commissioned and integrated into the network (see chapter 7.2.2 “Register and set up SEMS device via ProService Portal” on page 27). An Internet connection is required for the access.

When the EX.1 Energy Edge has been registered in the ProService Portal and the end user has been granted access via MyBuildings, the system can be also accessed via the ABB Smart Energy Installer app.

The app is available in the AppStore and Google Play Store:



App Store



Google Play Store

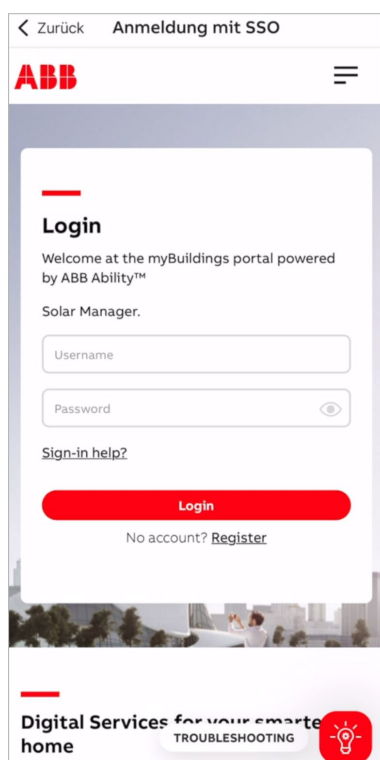
1. Download the app onto your mobile phone / tablet.
2. After successful installation, the icon for the ABB Smart Energy Installer app is displayed on the home screen of your device.

For further information, see chapter 9.7 “Using the ABB Smart Energy Manager app as an end customer “ on page 43.

9.4 Operation via ABB Smart Energy Installer app as a professional

Similar to the Energy Web View, the app ABB Smart Energy Installer shows all data regarding energy consumption and production of different plants. It offers detailed views for specific consumers. It is possible to make adaptations to the system via the app by adding further devices to the system.

1. Open the ABB Smart Energy Installer.



2. Log in with your credentials used for accessing ProService PortalMyBuildings.
 - You are redirected to the App dashboard.

The app dashboard is similar to that of the Energy Web View. In addition to detailed overviews with data and graphs on consumers and producers, you can also determine and display the self-sufficiency of individual appliances and their consumption.

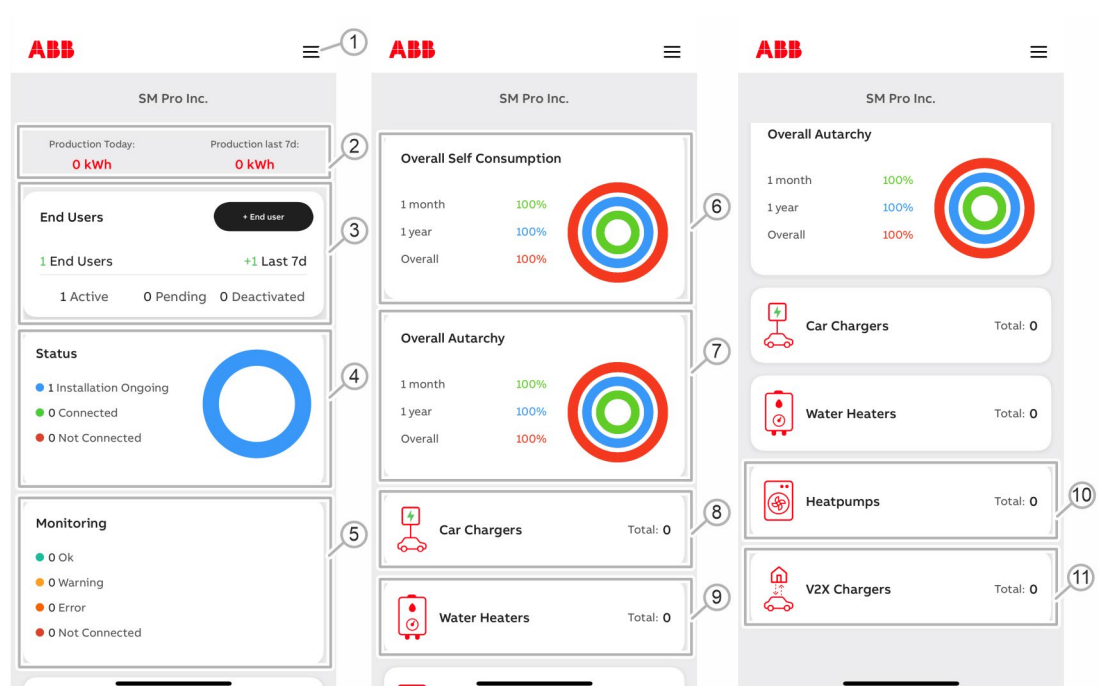


Fig. 13: App overview (Professional)

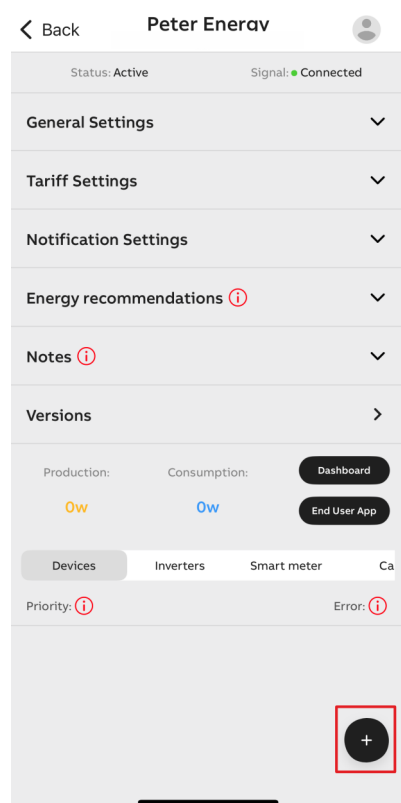
Pos.	Description
[1]	Via the burger menu you can access your account settings
[2]	Shows the total production of the current day and the last seven days of all plants
[3]	Shows all end users that the professional is in charge of - By tapping on the widget, you can access the list of your end users and view the connection status as well as the total production of the current day and the last seven days per user. - Tap on an end user to access their plants settings and to add devices.
[4]	Shows the status of all plants (installation ongoing / connected / not connected)
[5]	Gives an overview of current errors
[6]	Gives detailed information on the overall self-consumption By tapping on the widget you can get a detailed overview of the self-consumption of all plants
[7]	Gives detailed information on the overall autarchy By tapping on the widget you can get a detailed overview of the overall autarchy of all plants
[8]	Overview of car chargers in all plants
[9]	Overview of water heaters in all plants
[10]	Overview of heat pumps
[11]	Overview of V2X Chargers

Tab. 4: App overview (Professional)

9.5 Adding and modifying devices

You can add and modify devices via the end user widget.

1. Tap on the end user widget.
 - You are forwarded to the list of end users.
2. Tap on the end user to whose plant you wish to add further devices.
 - You are forwarded to the end user settings menu.
3. Add a device by tapping on the "+" button on the bottom right.



4. Add the device type and make the device specific settings.
5. Save by tapping the "Save" button.

9.6 End user settings

You can change the settings of each of your assigned end users and their plants.

- Use the arrows to collapse and expand the different menus. Use the buttons to access further sub menus.
- The following overview shows the possible setting options:

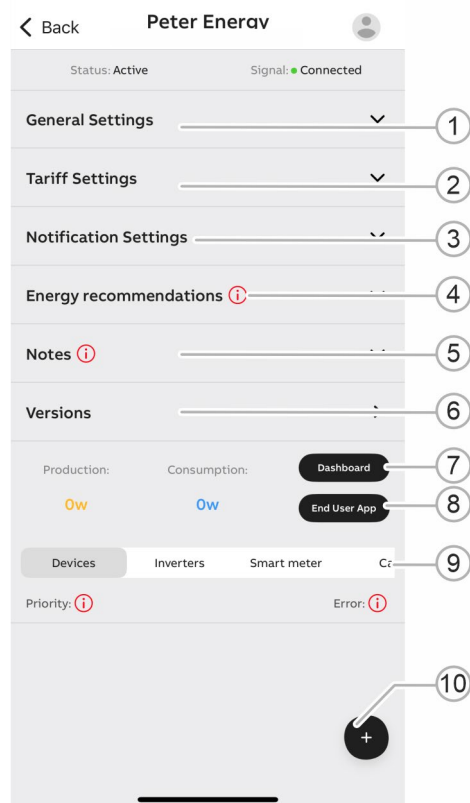


Fig. 14: Overview of end user settings

Pos.	Description
[1]	▪ Change the settings of the assigned main meter ▪ Activate load management
[2]	Change the tariff settings for the respective customer
[3]	Activate / deactivate notification settings
[4]	Activate / deactivate energy recommendations
[5]	Make notes on the specific end user plant
[6]	Access this menu to make software updates and reboot the plant
[7]	Access the dashboard from the end user view and make changes, if necessary
[8]	Access the end user app and make changes, if necessary
[9]	View devices, inverters, smart meters or cars by switching between tabs
[10]	Switch between the tabs and tap on the "+" symbol to add devices, inverters, smart meters or cars

Tab. 5: Overview of end user settings

9.7 Using the ABB Smart Energy Manager app as an end customer



Notice

The EX.1 Energy Edge must be commissioned and integrated into the network (see chapter 7.2.2 “Register and set up SEMS device via ProService Portal” on page 27). An Internet connection is required for the access.

When the EX.1 Energy Edge has been registered in the ProService Portal and the end user has been granted access via the MyBuildings, the system can be also accessed via the ABB Smart Energy Manager app by the end customer.

The app is available in the AppStore and Google Play Store:



App Store



Google Play Store

In order to use the ABB Smart Energy Management system on your smartphone on a daily basis, proceed as follows:

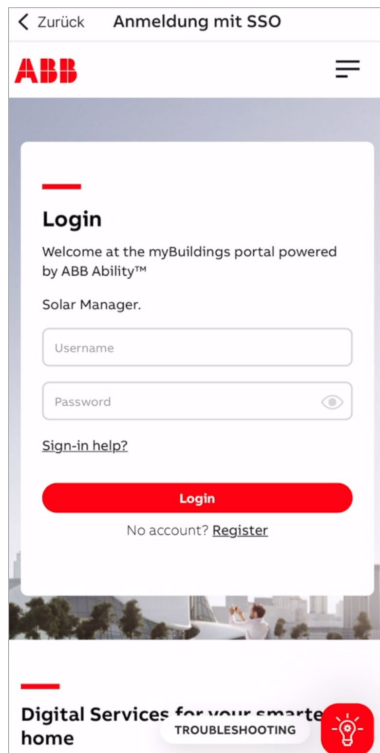
1. Load the app from the store onto the mobile terminal device.
2. After successful installation the icon for the ABB SEMS app is displayed on the desktop of the terminal device.

For further information, see chapter 9.8 “Operation via ABB Smart Energy Manager app as an end customer” on page 44.

9.8 Operation via ABB Smart Energy Manager app as an end customer

Similar to the Energy Web View, the ABB Smart Energy Manager app shows all data regarding energy consumption and production. It offers detail views for specific consumers. It is possible to make adaptations to the system via the app by adding further devices to the system.

1. Open the app.
2. Log in with your credentials used for accessing MyBuildings.
 - You are redirected to the App dashboard.



3. Tap on the tool icon. The following window opens:

The app home screen is similar to that of the web interface. In addition to detailed overviews with data and graphs on consumers and producers, you can also determine and display the self-sufficiency of individual appliances and their consumption.

1. Tap on the arrows next to a data category to access a detailed view of the displayed data [1].

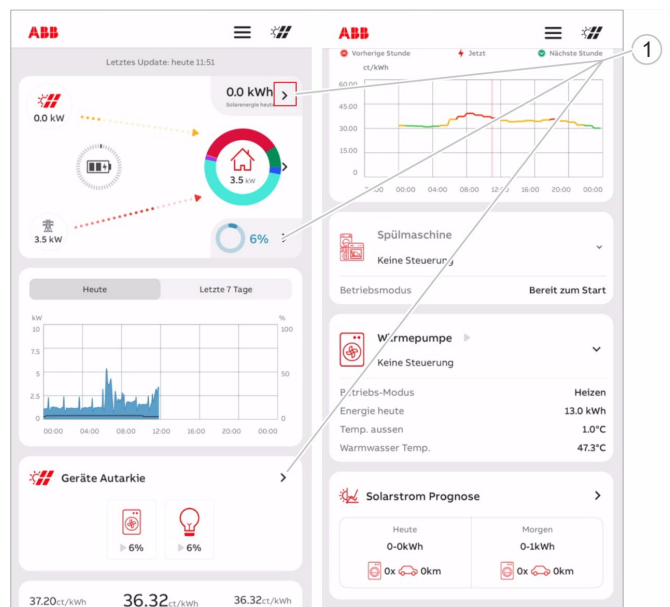


Fig. 15: Dashboard

2. You can customise the views for some values according to your personal preferences. Furthermore you can remove or add devices from/to the overview.

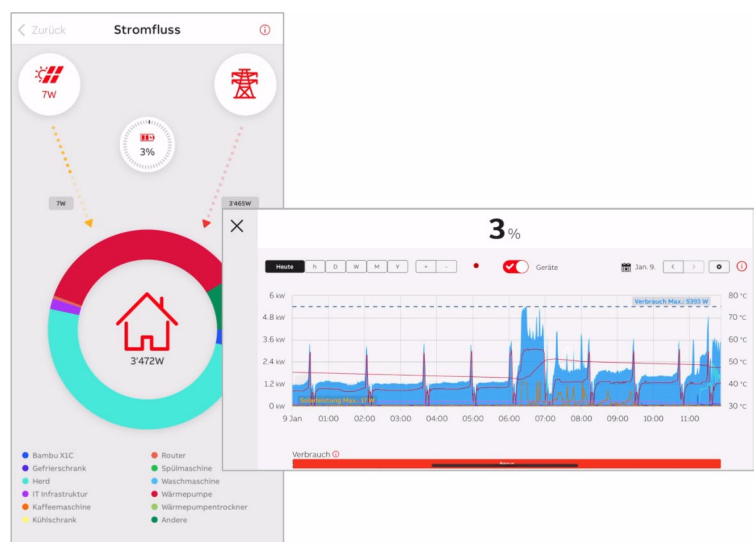


Fig. 16: Detailed view of specific data

9.9 Adding and modifying devices

You can add and modify devices via the settings.

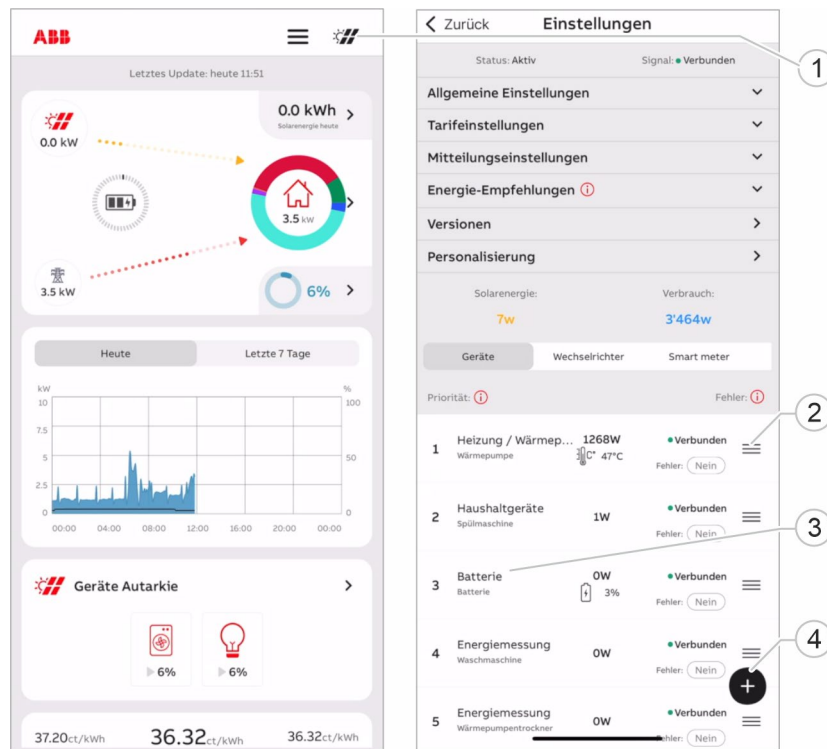


Fig. 17: Settings

3. Tap on the small solar symbol on the upper right [1].
4. Tap and hold the burger menu [2] on the right of each device to move up and down devices in priority.
5. Access the device settings by tapping on the device name/title (the row) [3].
6. Add further devices by tapping on the "+" button [4].

9.10 System monitoring

The system offers a wide range of functions for system monitoring. You can monitor your system either via the App or the Energy Web View.

9.11 Using the ABB Smart Energy Installer app as a professional

Via the ABB Smart Energy Installer app, you can access your customers' configuration and measurement data at any time and see, for example, whether the EX.1 Energy Edge are working properly (in the “Error overview” area in the illustration on the right).



Note

The customer has the option of removing you as the assigned installer via their support options. In this case, you will no longer have access to the data of the corresponding EX.1 Energy Edge.

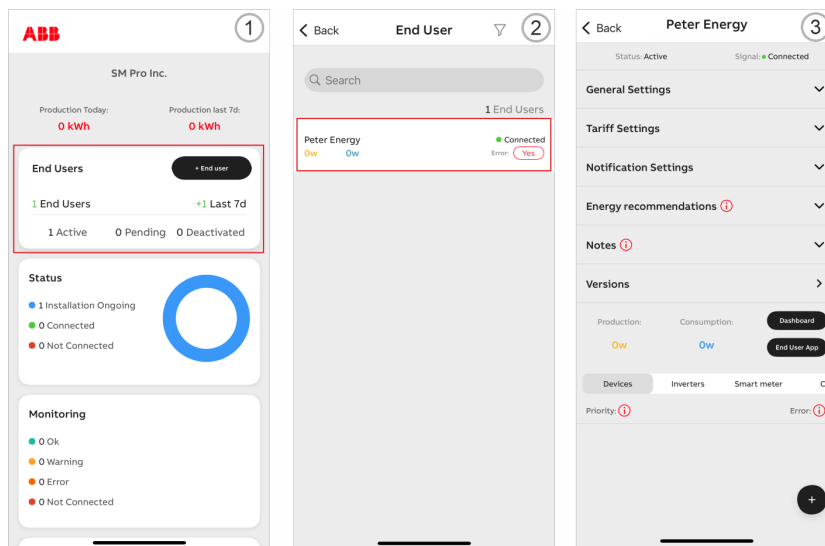


Fig. 18: System monitoring via app

By accessing the end user overview [1] and selecting the respective end user from the list [2], you can adjust a few settings [3] (see bottom image for a detailed view).

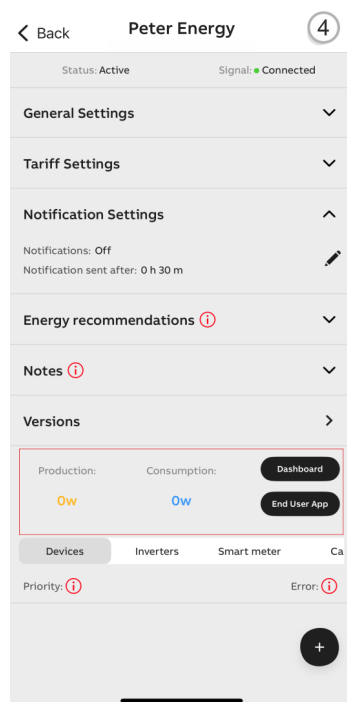


Fig. 19: Adjust settings via app

In order to provide the best possible support, you can use the end user app (ABB Smart Energy Manager) by tapping the "+ End User" button to jump into the role of the end user and see exactly what the end users sees in the end user app (see red marking in the graphic), or similar. Here you can make further settings, e. g. for the car charging station or smart plug.



Note

The ABB Smart Energy Manager must be installed on your smartphone for this function. You can return to the ABB Smart Energy Installer by closing the ABB Smart Energy Manager and opening the ABB Smart Energy Installer again.

9.11.1 Using the Energy Web View

The Energy Web View of the ABB Smart Energy Management system allows for an overview of the different plants that are assigned to a professional. From this perspective a professional can easily access the plants of their linked end users and the respective sub-users.

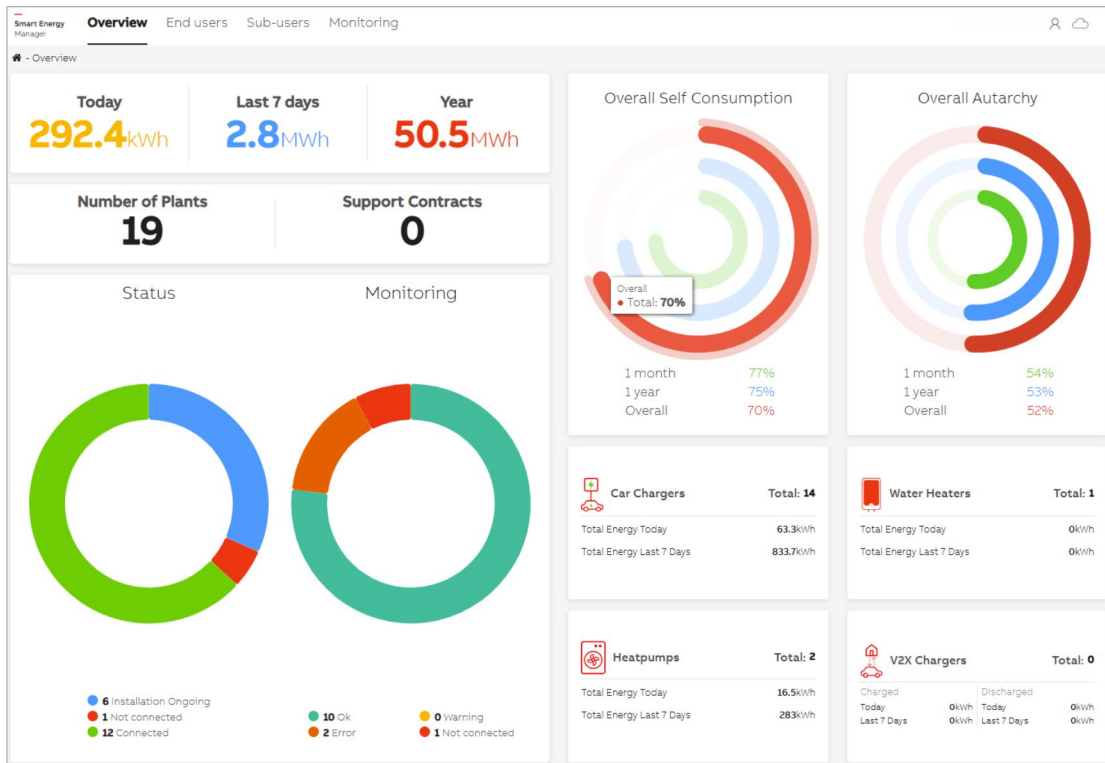


Fig. 20: Overview tab

In the "End users" tab, the professional can access the Dashboard view of a linked end user (see chapter 9.11.1 "Using the Energy Web View" on page 49).

The 'End users' tab displays a table of end users. The first user, John Doe, is highlighted, and a red box with a circled '1' points to the 'Dashboard' button next to his name.

ABB ID	Name	Signal	Error	Account status
[Redacted]	John Doe	Connected	Yes	Active
[Redacted]	Steve Miller	Connected	No	Active
[Redacted]	Mike Smith	Connected	No	Active

Additional details for John Doe:

- First Name: John
- Last Name: Doe
- Street: Lüdenscheld
- City: 58515
- E-mail: JohnDoe@abb.com
- ZIP: 58515

Navigation: 10 records displayed, 1 - 3 of 3 records.

Fig. 21: End users tab

9.11.1.1 Error messages

You can access your end users' configuration and the health data of your end user's systems as well as major KPIs and also observe energy data at any time. Furthermore, you can detect the availability of signals and errors to verify if the EX.1 Energy Edge are working properly.

To get a better overview you can sort the columns "Signal" [1] and "Error" [2].

ABB ID	Name	Signal	Error	Account status
[REDACTED]	John Doe	Connected	Yes	Active
[REDACTED]	Steve Miller	Connected	No	Active
[REDACTED]	Mike Smith	Connected	No	Active

First Name: John

Last Name: Doe

E-mail: JohnDoe@abb.com

Street: [REDACTED]

City: Lüdenscheld

ZIP: 58515

10 | Displaying 1 - 3 of 3 records

Fig. 22: End users – Signals and errors

9.11.1.2 Monitoring

In the "Monitoring" tab you can activate that you actively want to monitor your customers installation(s). When monitoring installations, you can activate notifications via email if there is e. g. an error within the system. The "Monitoring" tab is divided into the areas "Monitoring" [1] and "Notification" [2].

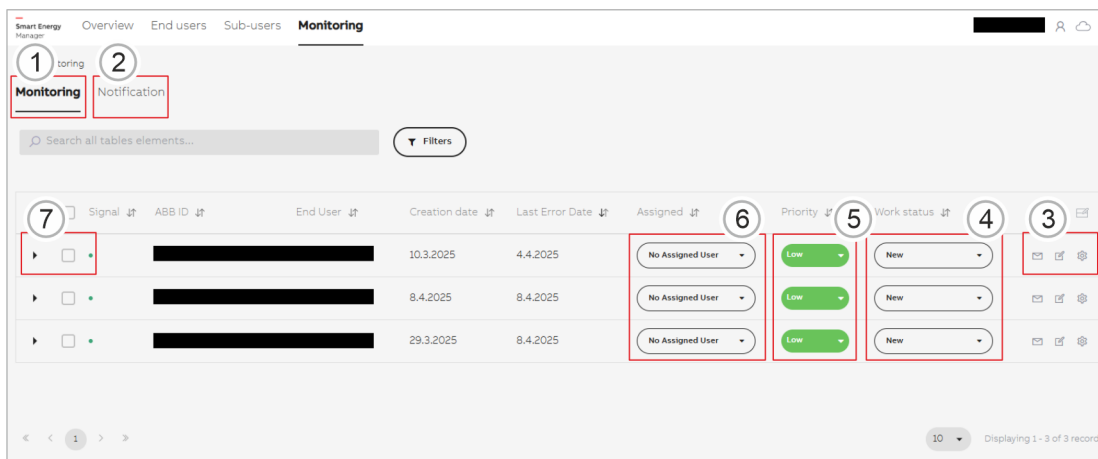


Fig. 23: Monitoring – Overview

Pos.	Description
[1]	In the "Monitoring" area you can see your customers' plant data and filter for specific criteria, such as "Assignees", "Work status".
[2]	The "Notification" area is used for specific notification settings, see See "Notification" on page 52.
[3]	By using the gear wheel, you can directly access the device settings. You can also leave an edit note and send an email to your customers.
[4]	Shows the status of specific errors (New/Pending/Wait for the customer/Schedule Service/Service Planned/In Progress/On hold/Resolved (by user)).
[5]	Indicates the priority of the error (low/medium/high).
[6]	Shows the Assignee of the error.
[7]	You can collapse and de-collapse your customer's specific device data and verify if there are pending errors.

Tab. 6: Monitoring - Overview

Notification

In the "Notification" area you can activate email notifications and set the frequency of sending emails. Furthermore, you can define which errors should be received.

The screenshot shows the 'Monitoring' section of the 'Smart Energy Manager' interface. The 'Notification' sub-section is active. It features a toggle for 'Email Notification' which is turned on. Below this, there are radio button options for the 'Frequency of sending an email': 'Daily', 'Weekly', 'Monthly' (which is selected), and 'Every new error'. At the bottom, there are radio button options for 'What errors should be received?': 'All errors' (which is selected) and 'Only errors of end users assigned to me'. The interface includes a top navigation bar with 'Overview', 'End users', 'Sub-users', and 'Monitoring', and a user profile 'Andrea Wagner' in the top right corner.

Smart Energy Manager Overview End users Sub-users **Monitoring** Andrea Wagner

Monitoring **Notification**

Email Notification ☒

Frequency of sending an email

☐ Daily

☐ Weekly

☒ Monthly

☐ Every new error

What errors should be received?

☒ All errors

☐ Only errors of end users assigned to me

9.12 Manage user accounts

You can manage user accounts via MyBuildings. All information, such as personal data, company, employees, customer systems and licenses are synchronised between MyBuildings and other components of the ABB Smart Energy Management platform.



Note

It is not possible for either the professional or the end customer to change profile information in the Energy Web View or within the app.

- Users can only view and check their data in the Energy Web View or app.
- Important user settings and information, such as languages, addresses, etc. must be made via MyBuildings.

All changes to those settings made in the MyBuildings are then automatically synchronised with the Energy Web View and the app.

- For managing a user account as professional, see Chapter 9.13 “Managing user accounts as a professional” on page 54.
- For managing a user account as end customer, see Chapter 9.14 “Managing user accounts as an end customer” on page 58.

9.13 Managing user accounts as a professional

You have the option of authorising other people within your company to also access your company's ABB Smart Energy Management system. To add employees, proceed as follows:

Invite employees

1. Log in to the ProService Portal.
2. Navigate to the "Company" tab.
3. Scroll down to the "Employees" section.

The screenshot displays the 'Employees' management interface. At the top, there are tabs for 'Employees (1)' and 'Invitations (0)'. A search bar labeled 'Search Name/Email' is positioned on the right. Below the tabs is a table with the following structure:

Name	Email	Role
John Doe	[REDACTED]	» Customers Employee

Below the table, it indicates '1 total'. At the bottom right, there is a button labeled 'Invite Employees'.

4. Click on the "Invite Employees" button.
5. Enter the respective employees' email address.
6. Confirm by clicking "Invite".
 - The employee will then receive an email with a link to confirm their email address, set their password and enter further information.
 - As long as an employee has not accepted their invitation, they will be listed in the section "Invitations".

Delete employees

As soon as an employee leaves your company, you must delete his/her account. To do this, click on the "Delete" icon next to the respective employee in the "Employees" section.

If you do not delete the accounts of your former employees, you will be liable for any damage caused by possible misuse of these accounts.

Change company data

1. Log in to the ProService Portal.
2. Navigate to the "Company" tab.
3. Click on the "Edit company data" button.

Company

Company data

Company name *

ABB GPG ProService

Your company E-mail *

jan.p.schaefer@de.abb.com

City *

Lüdenscheid

Zip Code *

58509

Country *

Germany

Phone *

+49 30 12132434

Address *

Freisenbergstr. 3

Company description *

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata

✓ End-users can find the company in the installer search of the myBuildings portal

Edit company data

Change personal data

You can customise the following information:

- Company name
- First name, last name
- E-mail
- Password
- Language
- Address (street, postal code, city)
- Telephone number
- Homepage

To change your personal data, proceed as follows:

1. Log in to the ProService Portal.
2. Click on your account logo on the upper right.
3. Click on "My account".

The screenshot displays the ProService Portal interface. At the top, there are navigation tabs: "Systems", "Company", and "Subscription plans". On the right side of the header, there is a "Messages" icon with a red notification bubble containing the number "3", and a user profile icon. A dropdown menu is open from the user profile icon, showing a red header with "Hello" followed by a blurred name. The menu items are: "My account", "My subscriptions", "Change password", "myBuildings portal", and "Tools & Apps". Under "Tools & Apps", there are three links: "» ABB-tacteo Configurator", "» Smarter Gallery", and "» ABB-Welcome IP Konfigurator". At the bottom of the menu is a black "Logout" button. The background of the portal shows a form with fields for "Logo", "Zip Code *" (containing "58513"), "City *" (containing "Lüdenscheid"), and "Phone *" (containing a German flag and "+49").

4. You are redirected to the "My Account" section.

5. Click on the pencil symbol to change your personal data.

6. Click "Save".

- Confirm the changes by entering your password.

Changing user data

Your employees can change their user data themselves. If you would still like to enter a mutation, you can do this by clicking on "Edit".



Note

Never change the account status from "Waiting for confirmation from user" to "Active". In this case, the user will not be able to complete their registration and generate a password. Should this happen anyway, your employee can create a password using the "Forgot password" function.

9.14 Managing user accounts as an end customer

The end user can make changes to their profile and personal data.

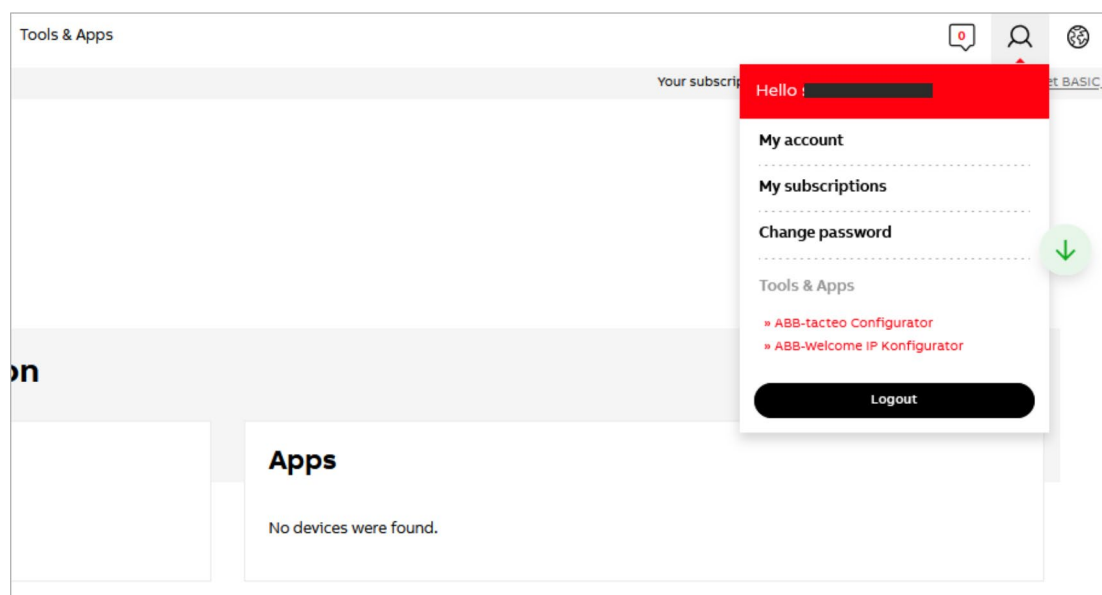
Change personal data

You can customise the following information:

- Company name
- First name, last name
- E-mail
- Password
- Language
- Address (street, postal code, city)
- Telephone number
- Homepage

To change your personal data, proceed as follows:

1. Log in to the MyBuildings.
2. Click on your account logo on the upper right.
3. Click on "My account".



4. You are redirected to the "My Account" section.

ABB My Home My Installer My Account Smart Sharing Subscription Plans Tools & Apps

My Account

Personal data

User: John Doe

Username:	E-Mail address:	Country:	Language:	Customer group:
[redacted]	[redacted]	Germany	English	Professional

Invoice address Payment methods Subscriptions Orders

Private
no address available

Business
no address available

deposit address → deposit address →

5. Click on the pencil symbol to change your personal data.

6. Click "Save".

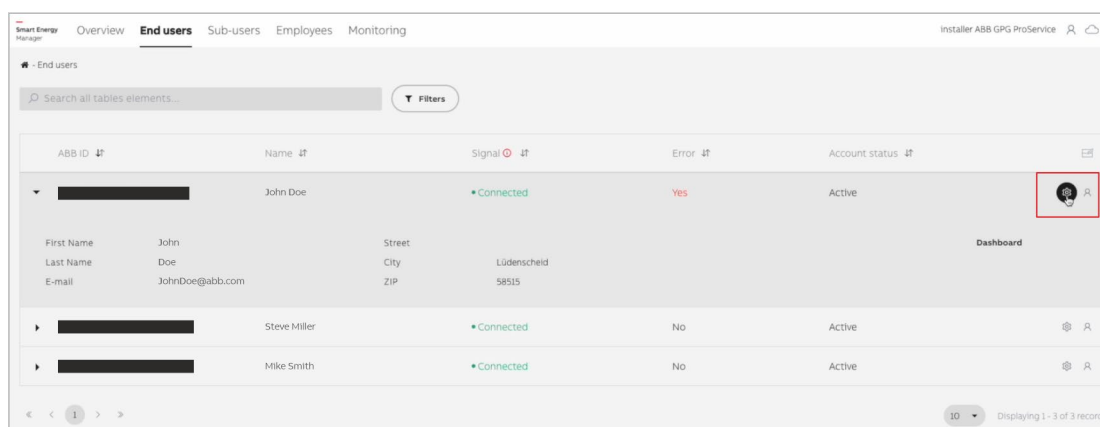
- Confirm the changes by entering your password.

10 Update

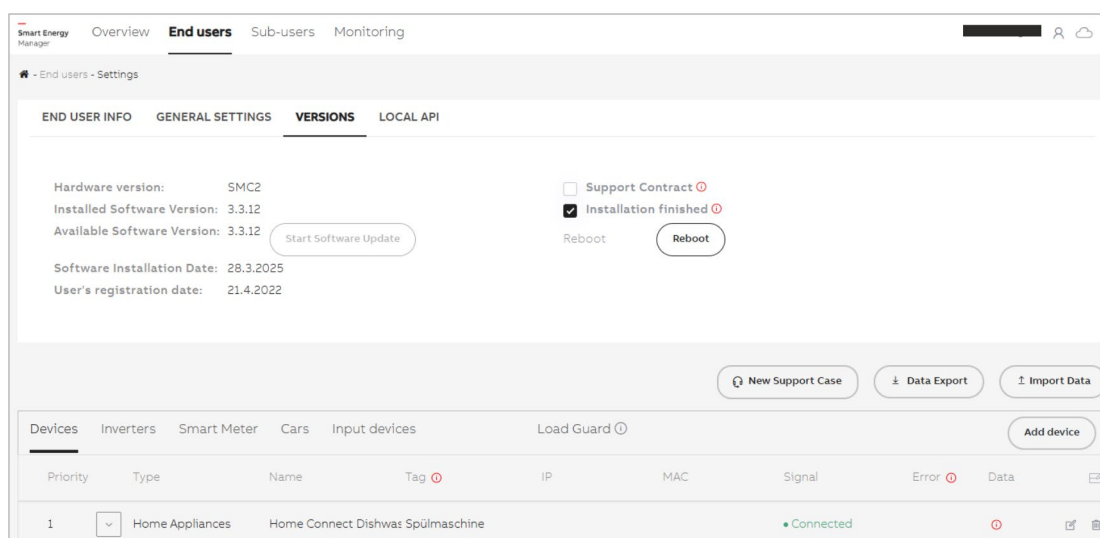
10.1 Software update via web interface

The software on the EX.1 Energy Edge is updated automatically. However, you can view the current status at any time in the web interface:

1. On the Energy Web View, navigate to the "End users" tab.
2. Select an end user from the list.
3. Click the gear wheel on the far right [1] to access the settings.



4. You will be forwarded to the configuration interface.
5. Select the "Versions" tab.

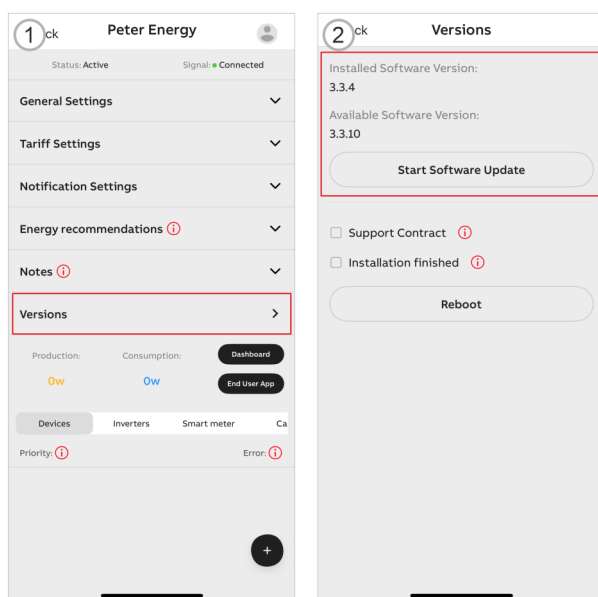


- Here you can see the Hardware and software versions.
- If there is a new software version available you can also start a software update by using the "Start Software Update" button.

10.2 Software update via app

The software on the EX.1 Energy Edge is updated automatically. However, you can view the current status at any time in the app. You can add and modify devices via the end user widget.

1. Tap on the end user widget.
 - You are forwarded to the list of end users.
2. Tap on the end user whose software status you wish to view.
 - You are forwarded to the end user settings menu.



3. Select the entry "Versions" [1].
 - You are forwarded to the versions overview.
 - Here you can view which is the current version and which version is available as update.
4. Tap on "Start Software Update" [2] to update the software.

11 Maintenance

11.1 Cleaning

**Caution! - Risk of damaging the device!**

- When spraying on cleaning agents, these can enter the device through crevices.
 - Do not spray cleaning agents directly onto the device.
- Aggressive cleaning agents can damage the surface of the device.
 - Never use caustic agents, abrasive agents or solvents.

Clean dirty devices with a soft dry cloth.

- If this is insufficient, the cloth can be moistened slightly with a soap solution.

The device is maintenance-free. In case of damage, e.g. during transport or storage), do not perform repairs. Once the device is opened, the warranty is void.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

12 Notes

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