

Energy Management System

Quick Guide



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As with Energy Management Systems (EMS) are introduced more and more into the market and the demand of the customers, we like to provide a clean overview of all the ins and outs you need to know to get started on providing Energy Management Systems (EMS) to your customers.

In this document we will cover the basic understanding that you need to get started with Energy Management.

We will discuss the following topics:

- Overall process
- Connection options
- Hardware installation
- Software configuration
- Trouble shooting

Overall way of working

The overall way of working can be described as following:

- Design
- Hardware options
- Software options
- Prepare the installation
- Installation PV inc. register and MyAutarco setup
- Installation of the EMS hardware
- Controller configuration
- End-user access setup

By following this general approach, the setup will be the most smoothly. To guide you through these steps and process. The following chapters of the quick guide are based on this principle.

While designing Energy Management, it is key to make sure that you understand how the system is envisioned to be used. The goal of the EMS can be different for each customer so it is important to understand this. Based on the goal of the Energy Management System, different components can be selected or used. In some cases, an actual Energy Management System (EMS) controller is not needed, and the same goal can be achieved by the already existing features of the battery, inverter or other devices.

3.1 Device compatibility

The most important check to do is to make sure that the devices you want to connect to the EMS controller are compatible with the EMS controller. While we keep working on adding support for more devices and brands, not everything will be supported.

To check what devices are compatible with the EMS controller, you can check the online overview at:

[Supported devices](#)

Before planning/selling the setup it is important to make sure that the existing or planned devices are compatible with the EMS controller.

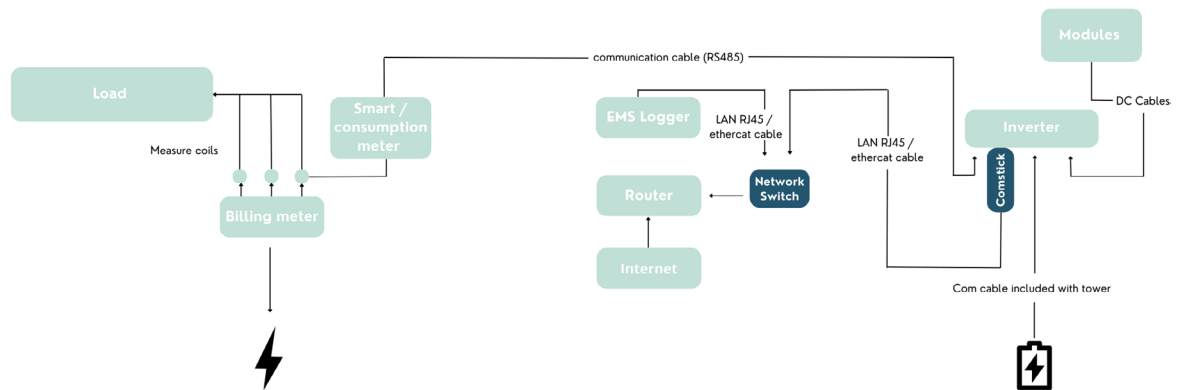
There are many options on how to install the EMS controller to the installation. To help out we have some diagrams per installation type to help out how these should be setup.

Note 1: The key element of the setup is that the EMS controller needs to be in the same network as the devices that you want to connect.

Note 2: When using TCP/IP connection for inverters. Make sure to use the S2.LAN.STICK.D as communication device.

4.1 LAN cable example (recommended)

In the LAN cable example shows a bit more details on where the load is, how cables can be used and the usage of the LAN cable as communication between EMS controller and the inverter.

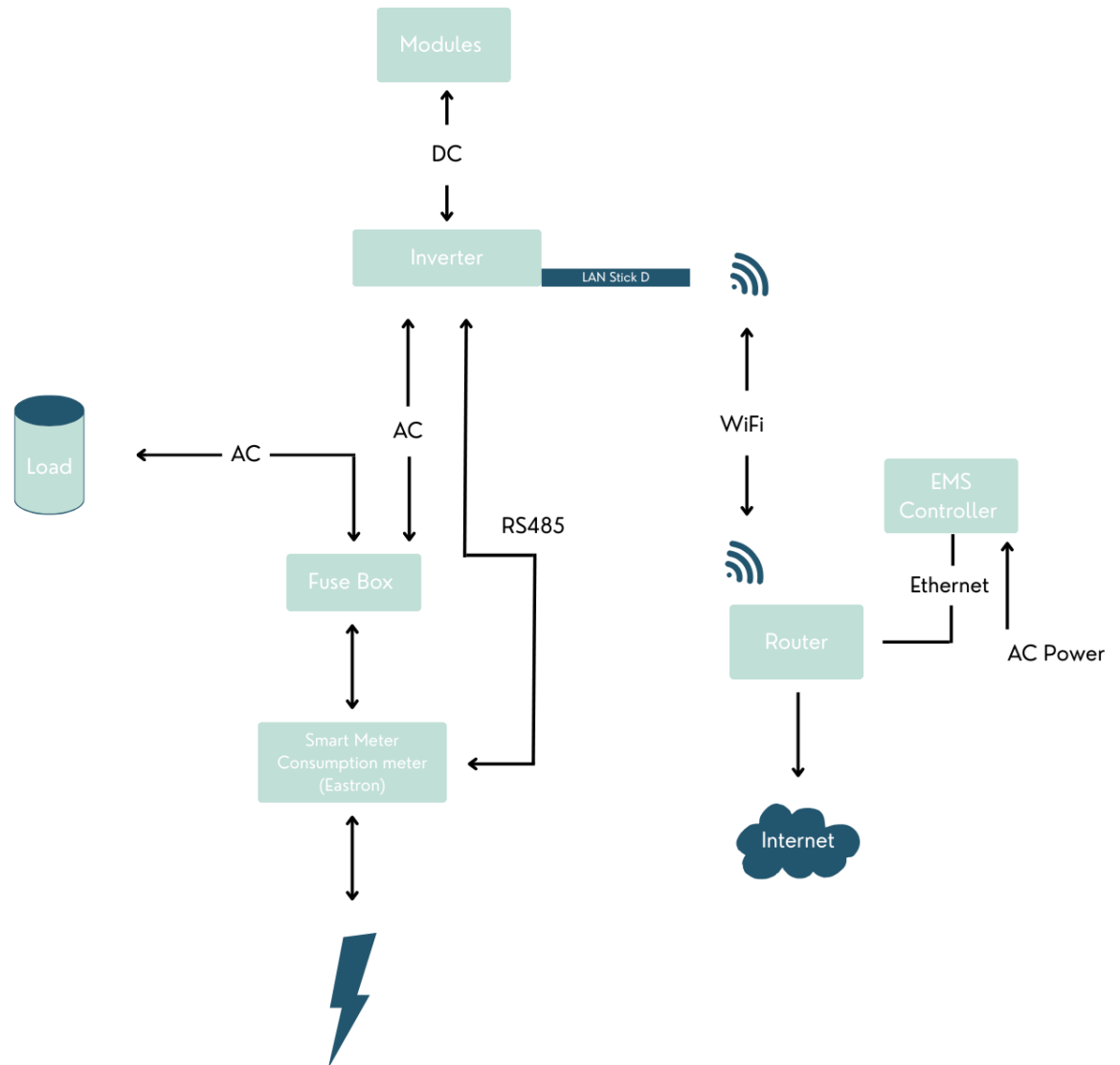


Currently we recommend to use the LAN cable as communication as this provides the stability of a cable over the sometimes unstable WiFi connections. We understand that this will not always be possible and there fore also discuss the other options.

WiFi setup (WiFi communication for inverter)

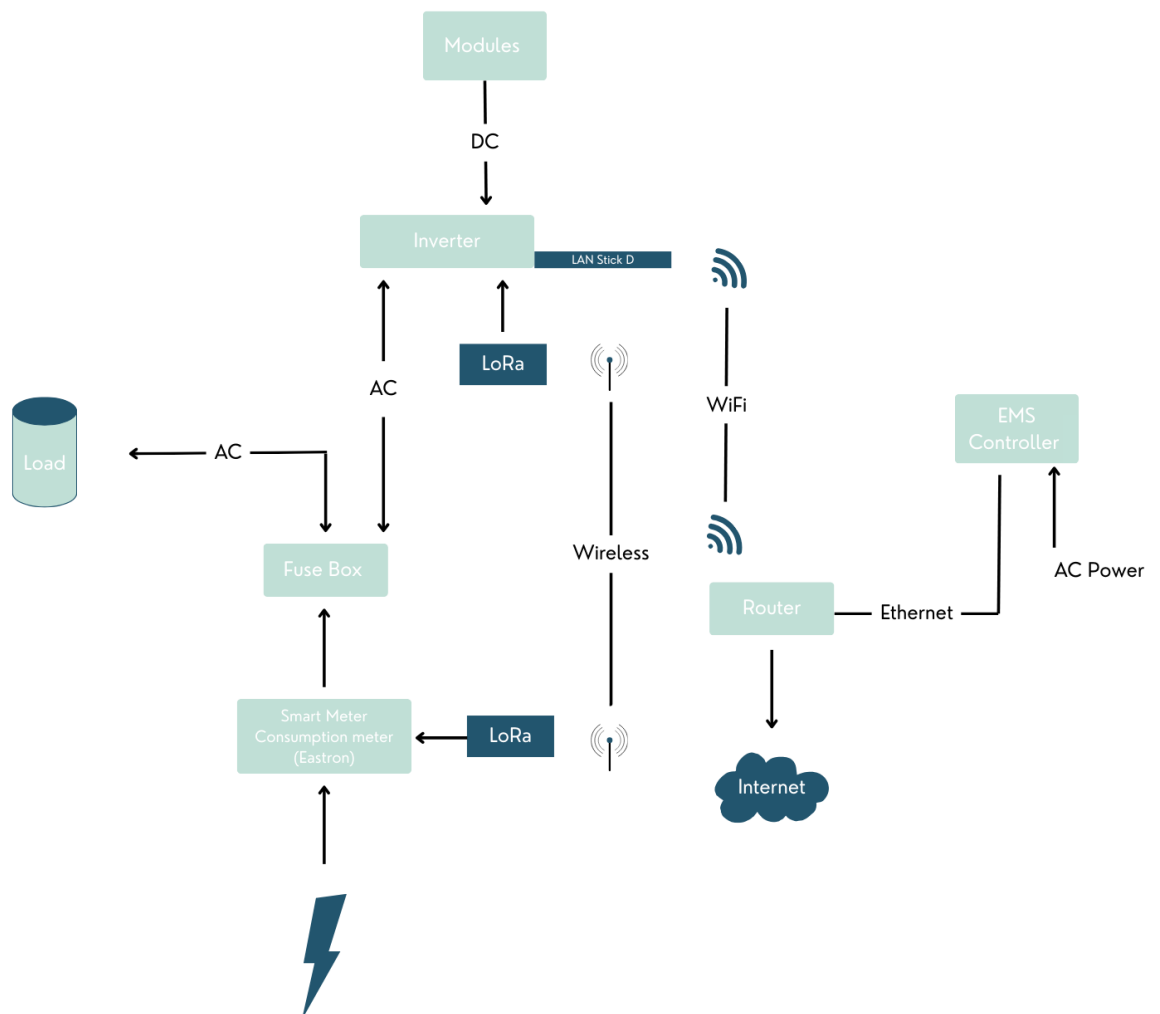
With the WiFi option of the LAN-stick you can setup the communication between the inverter and the Router or Access point to use WiFi.

Can be used when only a single cable can be installed, and that cable is used for the RS485 connection between the consumption meter and the inverter.

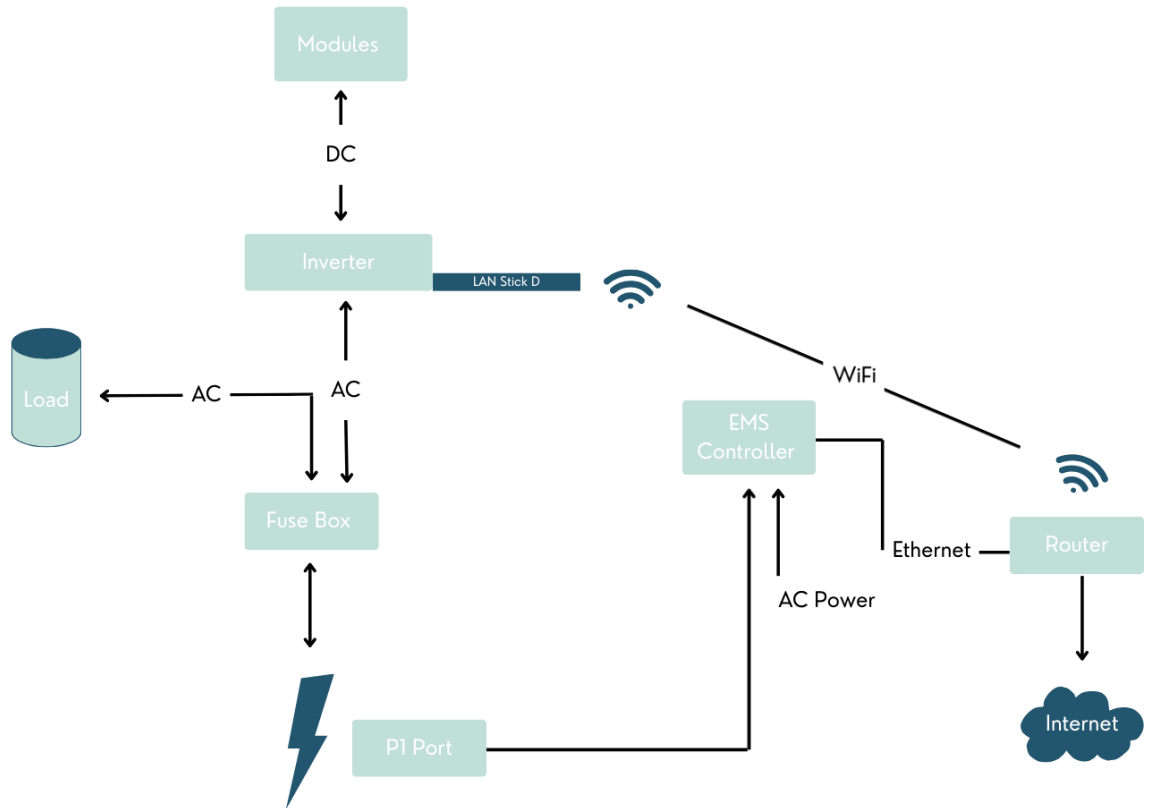


Note that the EMS connection is only possible on the LAN stick D that supports WiFi as well as LAN. This will not work with the current WiFi stick. WiFi repeaters will also not work as they often create their own network and the devices will not be reachable.

Long Range (LoRa) solutions transmit the signal they have over a long range. This can be used to transmit communication between a consumption meter and an inverter over a wireless connection (Not WiFi). And the communication between the Inverter and the EMS Controller will be handled via WiFi.



In some cases, it's not possible to have a consumption meter installed in the fuse box. In these cases, it's still possible to get the EMS Controller to run properly, however it will then need the connection to the P1 port of the billing meter.



In this scenario the meter data will come directly from the P1 port into the EMS Controller. This eliminates the need to install the consumption meter, but comes at a cost, as the inverter will not have access to consumption data.

This results in:

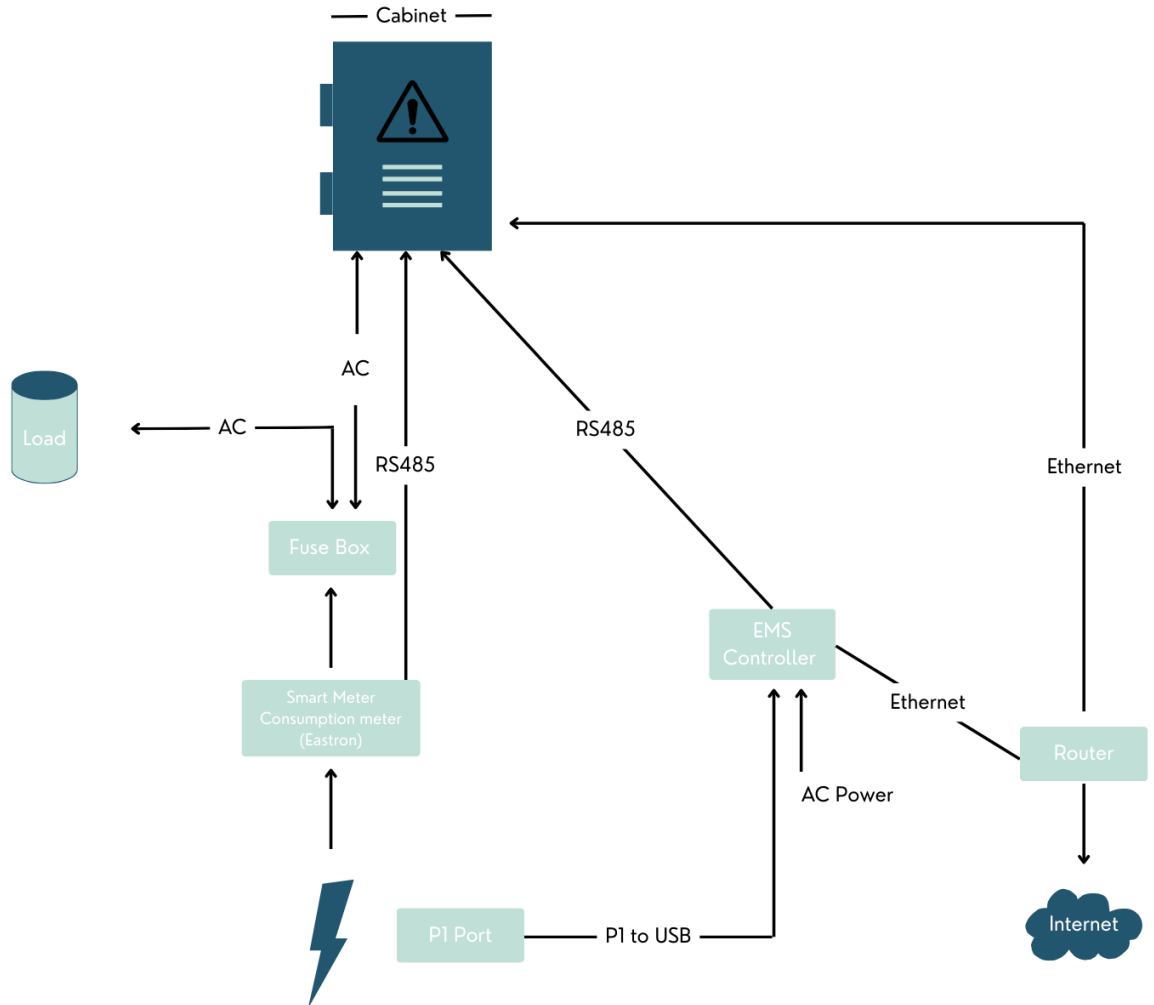
- MyAutarco will not show any consumption related information.
- When the EMS Controller goes down, the inverter can't use the meter data and charging battery for example will not work until the EMS controller is back up online.

The large cabinet solutions that Autarco offers have multiple connection options, but the following is recommended as it provides the most benefits.

The cabinet uses the following connection options:

- RS485 for EMS Controller
- RS485 for consumption meter
- Ethernet/RJ45 LAN cable for internet

The P1 to EMS controller in the image below is optional



To make sure the installation goes smooth, there are some preparation steps that you can verify before going to the customer.

The cabinet uses the following connection options:

- Double check the hardware compatibility
- Overview of needed hardware
- Decide on how to setup the connectivity
- Gather required information on the network / connection

5.1

Preparation upfront

After deciding how the EMS should be setup at the customers location, the next step is to make sure that you have the required hardware

The cabinet uses the following connection options:

- LAN stick D communication
- Cables for RS485 (when applicable)
- Ethernet cables
- LoRa (when applicable)
- Mounting material

Power cable for the controller installation is included in the box.

5.2

Gather required information on network / connection

The EMS Controller needs an internet connection and needs to be able to communicate with the other devices that it should be steering. For some networks, the end-customer will have a reserved IP address or other network wishes for the devices. It is important to clarify this before arriving at the installation site.

Information required	Note
Grid connection	1phase or 3phase
Allowed current for the connection	
Installation address	To get the right EPEX spot prices and weather forecasts for yield calculation
Allowed export limit	
Allowed import limit	

Configuring the controller

Information required	Note
Steering option for PV	
Steering option for storage	
Steering options for charging stations	
Steering options for heat pump and boilers	

First installation

We strongly advise to practise the installation of the EMS Controller before going to do an installation at an end customer. The main reason for this is that the EMS controller is requiring some IT knowledge and can be a new experience. For to make sure that installations at the customer will be as smooth as possible.

The correct order for the installation would be:

- Install PV and inverter
- Install battery
- Setup communication
- Ensure latest TCP/IP firmware on communication stick
- Install EMS controller
- Configure EMS controller
- link devices to EMS controller
- Set steering modes

The hardware installation should be according to one of the previously setup diagrams to ensure a proper working. There are other options but these are recommended.
The instructions can be found in the EMS controllers' box or here:

English – Safety instructions

- Installed in an electrical cabinet;
- Installed in the vicinity of electric power circuit wiring;
- Connected to any signal wire that does not come from a separated or safety extra-low voltage (SELV) circuit;
- Not supplied from a class II power supply (power supplies with either a double or reinforced insulation barrier between the input and the output).

I/O Ratings

Power supply	12V, 2, 5A
Digital inputs DIA & DIB	5-50Vdc
12Vout	60 mA
Relay Outputs R1 & R2	5-50Vdc, 1A

Do not surpass the I/O ratings.



Welcome!

EMS

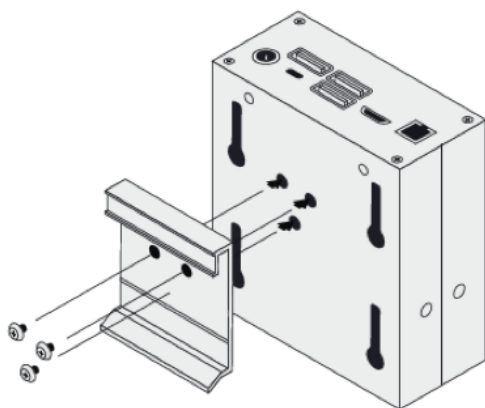
This quick start guide is designed to help you get up and running with our controller in no time.

Installation with DIN-rail

Follow this guide to assemble the Smart Grid Controller on a DIN-rail with the mounting plate delivered with your device.

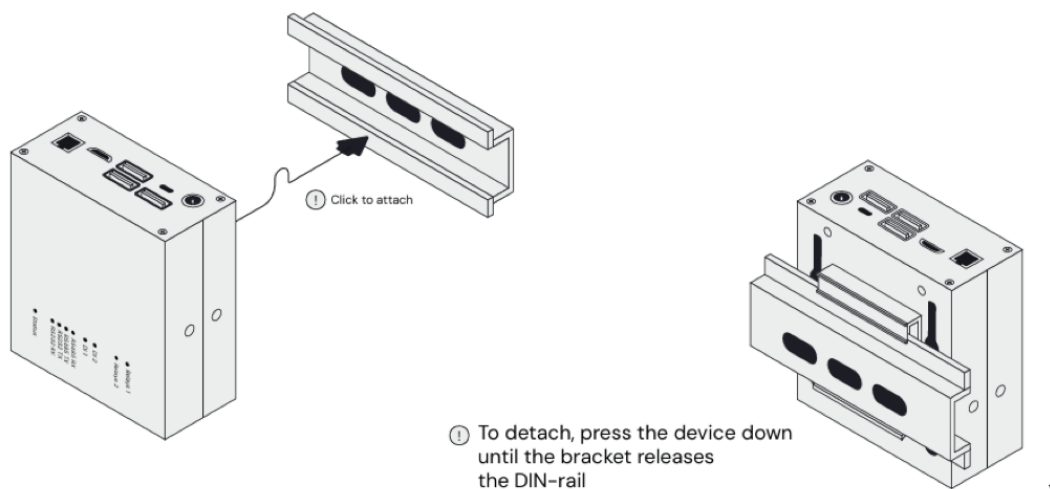
1. Mounting plate

Assemble the mounting plate to the Smart Grid Controller delivered with your device. Use only 3 screws delivered with the product.



2. DIN-rail

Gently push and click the device on a DIN-rail via the mounting plate.



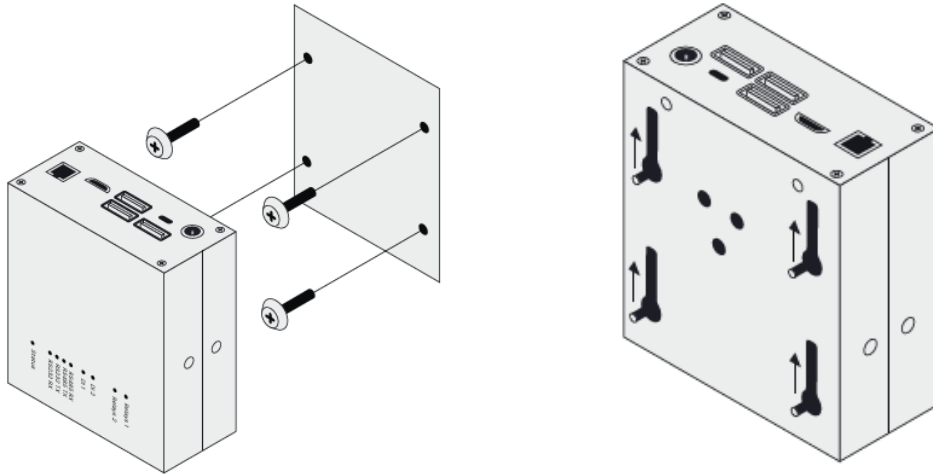
Installation on wall

EMS

Follow this guide to install the Smart Grid Controller on a wall.

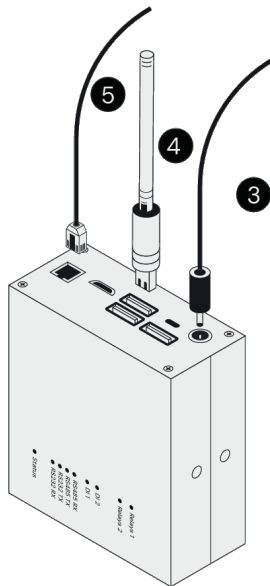
1. Attach to wall

Measure and drill 4 holes into the wall.



2. Attach screws to device

Slide in the screws attached to the wall, in the bottom holes of the device. Gently slide down the device until the screws meet the top of each hole.



Finishing the setup

You're almost done with the physical part of the controller. Make sure the main-power is off, then attach the power-supply, the WiFi Service Dongle and ethernet cable to the controller.

3. Attach the power-supply

4. Attach the WiFi Service Dongle for further setup using WiFi

5. Attach the Ethernet Cable for further setup using LAN

The software installation can be done via two paths.

1. Locally with a laptop/computer in the same network as the controller.
2. Via the Remote portal when the EMS Controller has an internet connection (LED's Green)

Locally connecting

Connecting to the controller via the LAN network

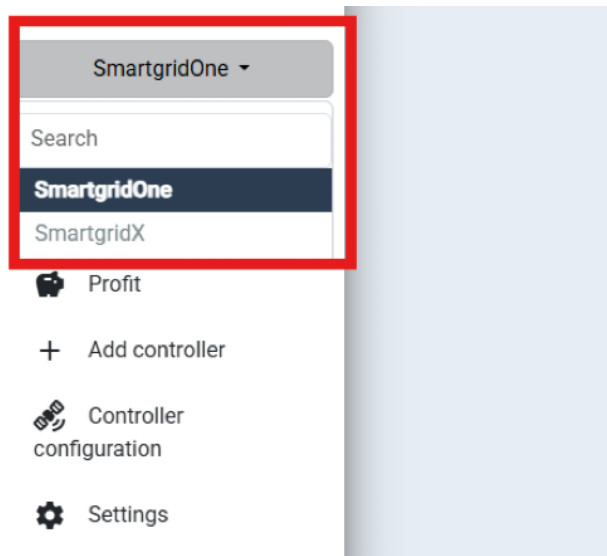
Note that your device and the controller must be connected to the same LAN network, and both must have a working network configuration. The controller is by default configured to receive an IP address via DHCP. In some rare cases where the network infrastructure does not provide DHCP, it might not receive a valid network configuration. If this is the case, you must use the Wi-Fi service dongle for the initial controller setup.

- 1 Make sure the controller is connected to the LAN network via ethernet and powered on.
- 2 Download an IP scanner such as Advanced IP Scanner (Windows) or Fing (Android & IOS).
- 3 Connect your device to the same LAN network.
- 4 Scan for the IP address of the controller in the network. You can identify the controller by it's MAC address (see the label of the controller).
- 5 Open a web browser and surf to the IP address of the controller, e.g. <http://192.168.1.123>

Remote connecting

Log in to the app (smartphone) or [Online Controller Portal](#) (computer).

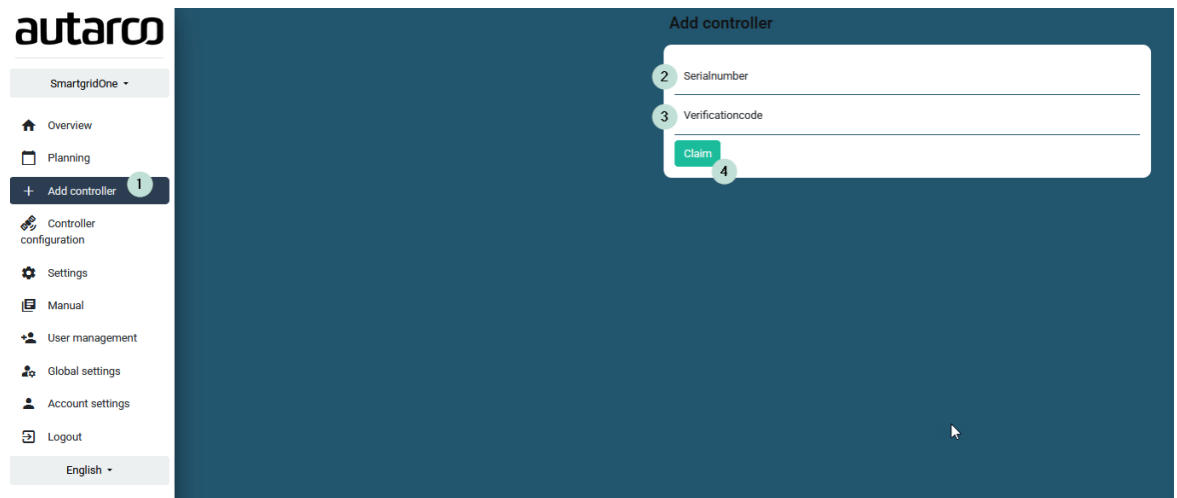
Make sure you are in the SmartgridOne environment



Claim the controller

EMS

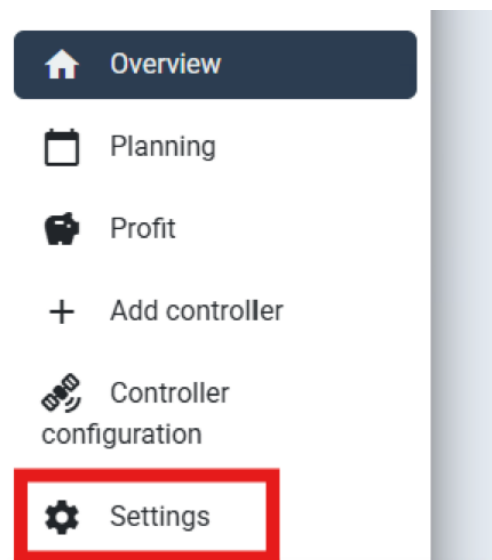
Claiming the controller to your environment is needed to make sure that you have remote access. This can be done via the “add controller” menu



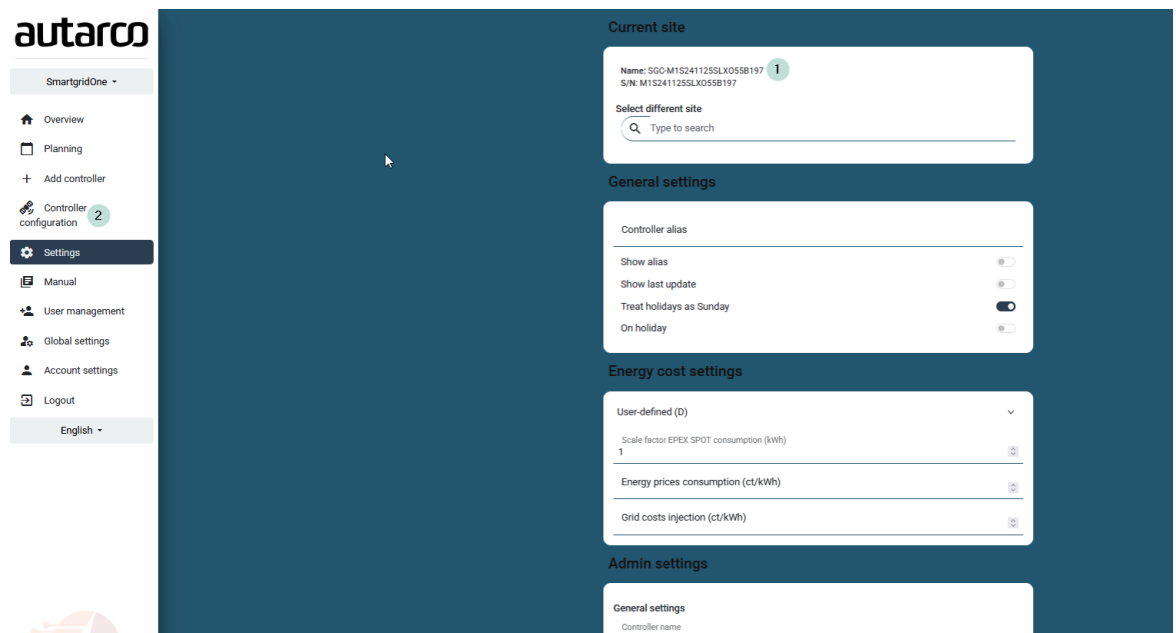
1. Open de Add controller tab
2. Provide the serial number that is given on the device (EMS Controller)
3. Provide the verification code that is given on the device (EMS Controller)
4. Press the claim button
 1. This will give a message that the controller is claimed successfully.

Switch to correct controller

In the settings menu, switch to the SmartgridOne Controller that you want to access.



Under Site selection make sure to have the correct controller selected (1).
After the selection you can go into the Controller settings via
“Controller configuration” (2)



Now you will be able to configure the controller remotely

7 Controller configuration

In Chapter 6.3 we've discussed how you can get into the controller for configuration. This chapter will discuss the different steps in the configuration. When connecting to the EMS Controller you see the login screen. Out of safety, its needed to login each time you want to make a change on the controller.

Default username: admin. Default password: admin

Serial number: M1S241125SLX055B197
Software version: release-1.12.3.1

● Cloud connection: ok

For the EMS Controller to function properly it needs to know some basic information. When a controller is newly installed it will automatically go through the initial setup to gather this information.

The most important information points are:

- Grid connection (1p or 3p)
- Allowed current
- Address
- Allows import & export limits



Setup Wizard

This is the initial setup of your smart grid controller.

Continue here or skip the setup if you are familiar with the settings.

Skip setup

Start



Setup Wizard - Circuit Breaker Settings

Main circuit breaker nominal current (A)

25

Previous

Next



Setup Wizard - Grid System Settings

Select the grid system of your installation:

- ☐ Single phase 230V
- ☒ Three phase wye 230V line-neutral / 400V line-line
- ☐ Three phase delta 230V line-line

Previous

Next



Setup Wizard - Grid Power Settings

Allowed grid import power (kW)

The smart grid controller uses this as a reference of the maximum import power it may allow and will try to control the connected devices to not go beyond this limit.
Note, this limit will be adjusted to be at most the power allowed by the main circuit breaker.

Enter the desired maximum grid import power in kW. Leave empty if there is no specific limit.

Allowed grid export power (kW)

The smart grid controller uses this as a reference of the maximum export power it may allow and will try to control the connected devices to not go beyond this limit.
Note, this limit will be adjusted to be at most the power allowed by the main circuit breaker.

Enter the desired maximum grid export power in kW. Leave empty if there is no specific limit.

Allowed grid export power safety margin (kW)

Safety margin of how far to stay above the grid export limit.

0.0

Previous

Next

The following settings decide how the EMS is going to work. They can be changed later on but it's good to set them correctly from the start.



Setup Wizard - Default working mode of the smart grid controller

Caution: if there is an external control signal configured, the signal will take precedence, and the controller will only use the working modes below as fallback when the signal is not active.

Storage devices

Cost optimization

Production devices

Don't control

EVs

Self-consumption optimization

Heat pumps, boilers and on/off loads

Self-consumption optimization

Previous

Next

Data saver

The minimum recommend amount of data is 5GB per month if you have less than five devices, plus 1GB extra per additional device. If you use external control signals (e.g. for curtailment, unbalance market connections, ... etc.), then you are strongly advised to use a fixed internet connection or an unlimited mobile data plan. **DISCLAIMER:** The manufacturer of this controller cannot be held responsible for mobile data usage beyond your bundle.

If you enable the data saver, then device readings will be downsampled, the app no longer gets live readings, and settings changed in the app will be applied with a delay.

Data saver

On

Previous

Next

Last but not least it will ask to confirm the address. This is needed to check the EPEX spot prices for example of the negative energy prices but also for Smart Charging.

Location


The location of the SmartgridOne is needed for an accurate weather forecast. Please enter the installation address for the most accurate forecast, or the name of a nearby city.

Address:


Validate address

Save address

Map



When everything is done you will be redirected to the overall overview of the EMS Controller.


[Home](#)
[Devices](#)
[Groups](#)
[External data sources](#)
[Link to Insights](#)
[Settings](#)
[Manual](#)
[Data](#)
[Logout](#)

Status

Serial number: M1S241125SLX055B197

Software version: release-1.12.3.1

● Cloud connection: ok

Test internet

Do speed test

Manual

Open manual

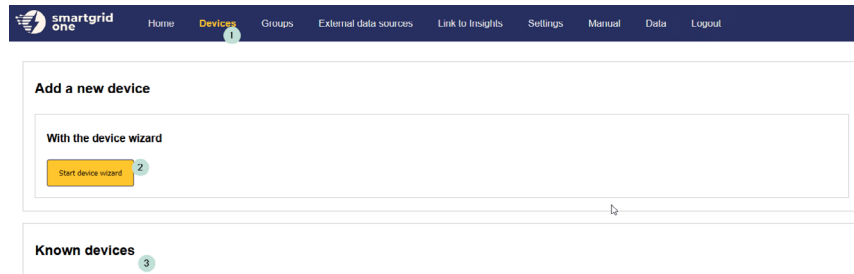
7.2 Connecting devices

After the initial setup it will be possible to add devices. As there are many devices possible, we will just explain the main products that we provide in our portfolio:

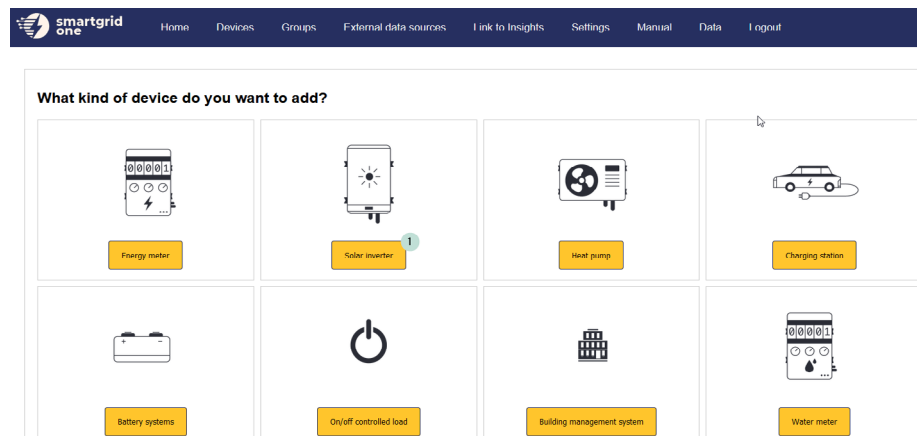
- Inverter
- Cabinet
- Smart meter

To add the inverter, we should add a device

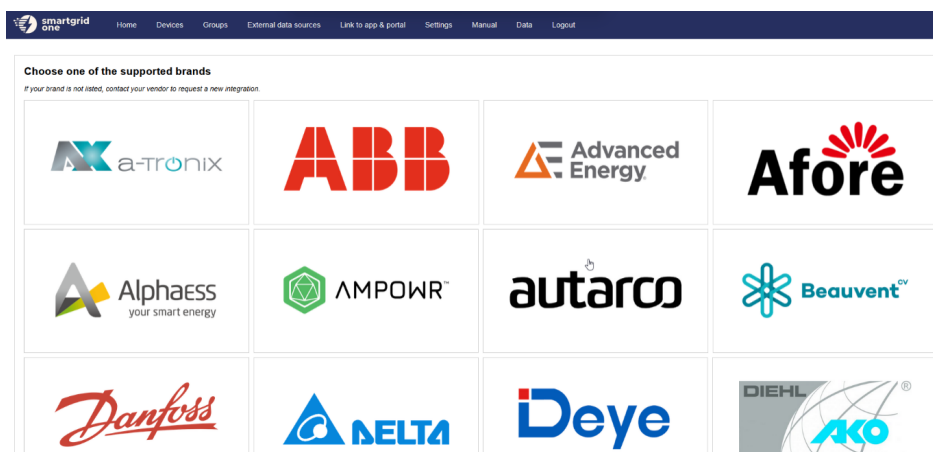
1. Go to the devices TAB
2. You can start adding a new device to the EMS logger
3. Or you can view the current already connected devices to the EMS logger.



In this example we will add an Autarco inverter with a battery connected to it. For this we need to add the solar inverter.



At the brand select Autarco, if Autarco is not showing, make sure your EMS Controller has the latest firmware version.



We want to have both the Autarco communication stick and EMS Controller to be active for that, we need to use the Ethernet TCP connection option.

EMS



Home Devices Groups External data sources Link to Insights Settings Manual Data Logout

Which interface does the device use?

Available connection interface options:

- ☒ Ethernet TCP
- ☐ Ethernet TCP to RS485 converter (Solar gateway)

Next

Select the correct protocol based on the inverter type that you have connected.



Home Devices Groups External data sources Link to Insights Settings Manual Data Logout

Which protocol does the device use?

- ☒ Solis Hybrid Inverter Protocol

Next


Only specific models needs to be selected, if your model is not here, it will work perfectly with the default communication protocol. This will be for 99% of the time the correct option.

Which device model are you adding?

- ☒ My model or device series is not listed
- ☐ 100-125K G5 ⓘ
- ☐ S5-GC50K ⓘ

Next

Make sure the select if there is a battery connected to the inverter.



Home Devices Groups External data sources Link to Insights Settings Manual Data Logout

The driver requires some additional input

What is included in the installation?

Solar panels and battery

Does the inverter have its own energy meter directly connected to the inverter?

No

In what direction does the solis meter measure the energy flow?

Forward

Submit

Find the correct device (communication stick) and press select.

EMS

Finding the device can be very tricky. In the future the IP will be shown in MyAutarco. But right now the options are:

- Search via the DHCP server or via the router which IP address is assigned to the communication stick.
- When online, Autarco support team is able to retrieve the local IP address from the data in MyAutarco. Send an email with the serial number of your inverter to support@autarco.com and request the IP address of the inverter.

Device network parameters

Enter here the network parameters of the device or the converter/gateway used to access the device.

▼ Option 1: Add by MAC address (recommended for networks with DHCP):

MAC Address	IP Address	Vendor	Actions
00:22:8C:AC:96:72	192.168.2.1	LinkSprite Technologies, Inc.	Select
2E:E1:EB:96:9F:AF	192.168.2.180		Select
98:42:65:7C:69:80	192.168.2.254	Sagemcom Broadband SAS	Select
D4:D4:DA:21:FF:D8	192.168.2.2	Espressif Inc.	Select
D8:F3:BC:67:23:D1	192.168.2.6	Liteon Technology Corporation	Select

Refresh table

▼ Option 2: Add by fixed IP address, domain or hostname:

- Select do a slow scan
- Set scan time out to 10 seconds.

Summary of the scan parameters

The controller will look for devices according to the parameters below. The default presented parameters are based on what are the possible parameters for a device. Feel free to go with the defaults for a full scan, or adapt them to your needs for a faster scan.

☒ Do a slow scan (takes more time, but might find devices that are otherwise not found)

Search

▼ Show scan parameters

D4:D4:DA:21:FF:D8

Port
502

Communication protocol
Sole Hybrid Inverter Protocol

Min. bus address
1

Max. bus address
254

Scan timeout (s)
10

User parameters
("childrenSelection" "ward")

Search

Make sure the slow scan is enabled

make sure the scan timeout is set to 10 seconds.

Press the search button. It will then start the scan.

Scanning ↻

Found devices: 0

Device not found?
[Click here to check out the troubleshooting page](#)

End scan and go to results Show detailed logs

Status messages:

EMS

The screenshot displays the 'smartgrid one' application interface. At the top, a dark blue header contains the logo and navigation links: Home, Devices, Groups, External data sources, Link to Insights, Settings, Manual, Data, and Logout. The main content area features a 'Scanning' section with a yellow button labeled 'End scan and go to results'. Below this, it indicates 'Found devices: (Autoscroll)'. A scrollable log window shows the following output:

```

Connected to 192.168.2.2 with CONNECTIONID NoVOXGSLIKTRUN
Command success: ["socketDrivers": [{"deviceId": "SolarInverterTCP Inverter Protocol"}, {"deviceId": "1", "moduleId": "254", "acceptingDevices": true, "userParams": [{"childDeviceId": "solarInverter", "hashKey": "no"}]}]
Scan protocols: [{"class": "ia.controller.drivers.socketDrivers.modbus.solis.hybrid.SolisHybridTCPProtocolDriver"}]
Scanning for SolisHybridInverter with serial bus address 1
Address 1: Sending serial bytes: 0x07f7ee0e0000040401400001
Could not update register frequency_ks with address 23094 (0xb146). Exception: No reply received from device on address 1
No device found with serial bus address 1
Scanning for SolisHybridInverter with serial bus address 2
Address 2: Sending serial bytes: 0xe25000000000040401400001
Could not update register frequency_ks with address 23094 (0xb146). Exception: No reply received from device on address 2
No device found with serial bus address 2
Scanning for SolisHybridInverter with serial bus address 3
Address 3: Sending serial bytes: 0xb14600000000040401400001
Could not update register frequency_ks with address 23094 (0xb146). Exception: No reply received from device on address 3
No device found with serial bus address 3
Scanning for SolisHybridInverter with serial bus address 4
Address 4: Sending serial bytes: 0xb14600000000040401400001

```

```

Testing socket...
Socket test succeeded. Reusing socket
Connected to 192.168.2.2 with connectionId hqv00YgidzKtMUN
Command kwargs: {'specificDrivers': ['Solis Hybrid TCP Inverter Protocol'],
Scan protocols: (<class 'io.controller.drivers.socketDrivers.modbus.solis.h
Scan protocols: ['Solis Hybrid TCP Inverter Protocol']
Scanning for 'SolisHybridInverter' with serial bus address 1
Address 1: Sending serial bytes: 0x85d0000000005010481460001
Address 1: Received reply bytes: 0x85d00000000050104021386
Address 1: Try framebytes: 0x85d00000000050104021386
Address 1: Decoding successful
Frequency: 49.980000000000004
Address 1: Sending serial bytes: 0x6a28000000006010481310001
Address 1: Received reply bytes: 0x6a2800000000501040208b3
Address 1: Try framebytes: 0x6a2800000000501040208b3
Address 1: Decoding successful
Voltage: 222.700000000000002
Reading device info from Solis inverter
Starting a new block with register serialNo
Address 1: Sending serial bytes: 0xb3a2000000006010480ec0010

```

Scanning ↻

```
Found SolisHybridInverter with serial number 143102 and bus address 1
```

[illegible]

At the device settings make sure you set the correct values so the EMS controller knows how to properly steer the connected device.

EMS

Device/group settings

The save button is on the bottom of this page.

Solis Hybrid Inverter 143102

Setting	Current value	New value
Name	Solis Hybrid Inverter 143102	Solis Hybrid Inverter 143102
Nominal power (kW)		3.6
Is the device single or three phase?		<input checked="" type="radio"/> Single phase <input type="radio"/> Three phase

Solis Hybrid Battery Input 143102-BatteryInput1

Setting	Current value	New value
Name	Solis Hybrid Battery Input 143102-BatteryInput1	Solis Hybrid Battery Input 143102-BatteryInput1
Nominal power (kW)	Not limited	0
Battery capacity (kWh)	10.0	5
Minimum battery state of charge (%)	20.0	20.0
Maximum battery state of charge (%)	100.0	100.0

At the end of the process the new added device will show up at the know devices.

HomeDevicesGroupsExternal data sourcesLink to InsightsSettingsManualDataLogout

Add a new device

With the device wizard

Start device wizard

Known devices

Name	Manufacturer	Actions	Last communication
Solis Hybrid Inverter 143102	Solis	<div>Change device name</div> <div>Change settings</div> <div>Remove device</div>	28/01/2025, 16:49:24

When all the important devices are connected, it is time to setup the control modes of the devices. In the top navigation go to settings (1)



On this page you find the section for Default working modes. This can be used to setup the working modes of the connected devices.

Default working mode of the SmartgridOne scheduler

Caution: if there is an external control signal configured, the signal will take precedence, and the SmartgridOne will only use the w

Storage devices

Cost optimization

Minimum price difference between peak and off-peak for use of storage (EUR/kWh)

0.04

☒ Allow energy trading (enables selling energy from the storage back to the grid)

Production devices

Cost optimization

EVs

Don't control

Heat pumps

Don't control

Hot water boilers

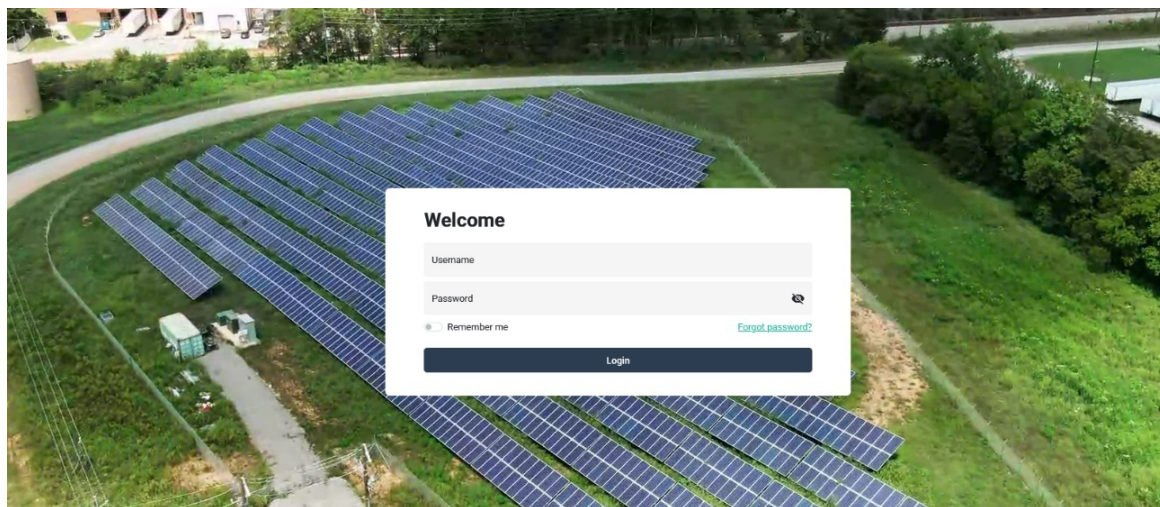
Don't control

On/off loads

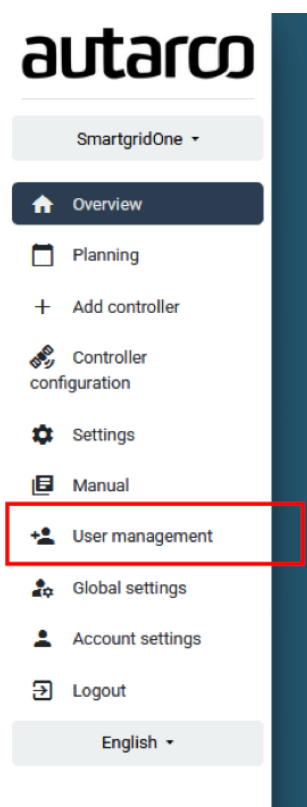
Don't control

ften the final step for the EMS setup is to give the users access to the App/web portal so they can view their EMS system.

Make sure you are logged in to the dealers environment on [Online Controller Portal](#)



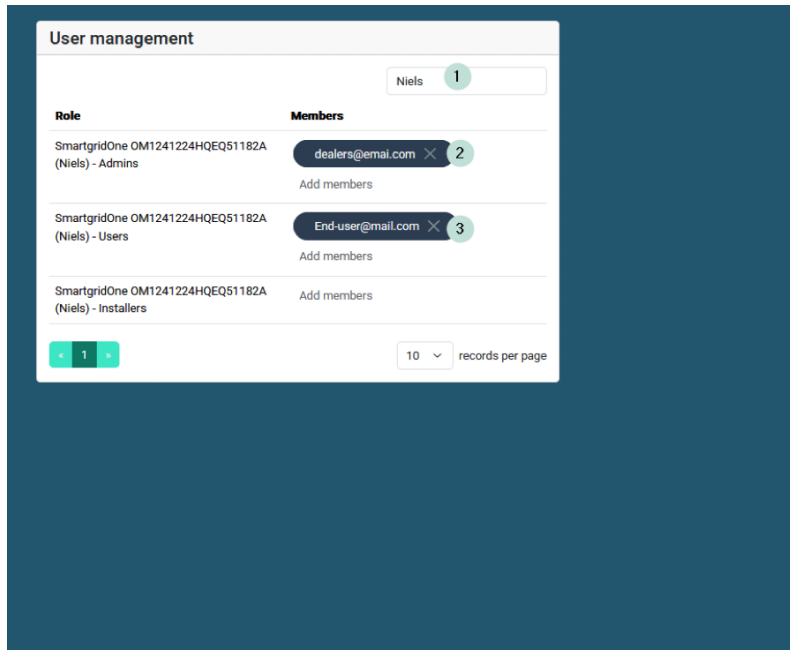
On the menu on the left, open the [User management] page.



On the next page you can see all the connected / available loggers that you've installed so far.

EMS

1. Use the search option to find the connected EMS controllers.
2. You will see your own email address shown here. You can add other admins if you want to delegate the managing or maintenance of the EMS controller.
3. Under the [users] option provide the email of the end user that wants to have access to the EMS controllers app.



There will be an automatic email send to the user with a password. After that the user can login to the environment after installing the app.

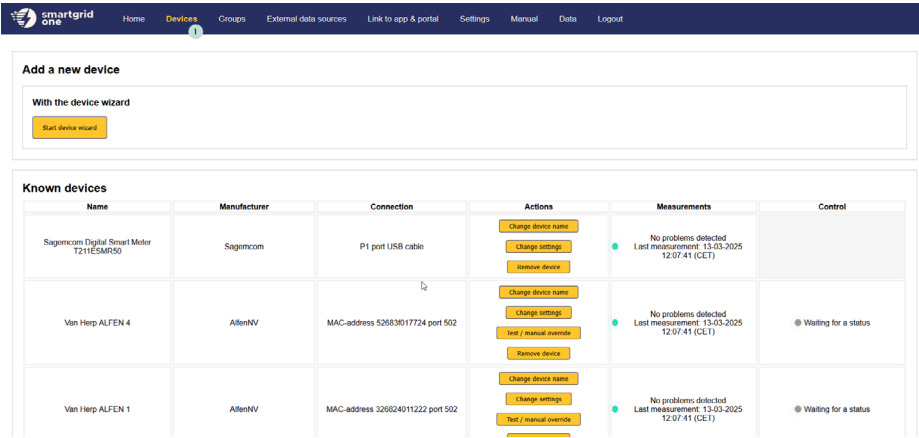
[Install via Google Play](#)

[Install via Apple Store](#)

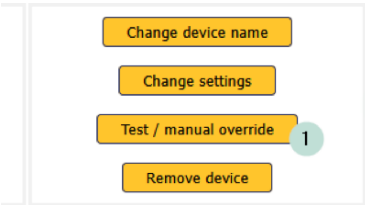
9.1

Force charge/discharge battery for testing

Login to the smart grid one controller. Go to devices (1)



Locate the device you want to test and open the Test/ manual override (1) option



- On the test page. There are 2 inputs
1. The power of the charging or discharging
 2. The duration of the test in minutes

Test / manual override

Please take into account:

- After the test / manual override the SmartgridOne will return to its normal behaviour.
- External signal drivers are completely disabled during the test / manual override!

Test / Manual override DHX00F Battery Input 56013781 1

Current state of charge: 25 %
Battery power setpoint (W). Positive is charging, negative is discharging.

1

Duration (minutes)

2

3

3. button to Start the test

After pressing start, it will start the test.

it can take some second before you see something moving. and the actual power is often not 100% correct with the set point. but it should be close! anything else may indicate its off.

Status

It can take ten to twenty seconds for the device to react...

If the device does not react, please check the SmartgridOne manual for wiring and settings of the device.

Power setpoint (W): 3000.0

Actual power (W): 2710.0

Stop test / manual override

Proceed without stopping

After testing please use the Stop test / manual override button. to prevent multiple tests at the same time.

9.2

Changing data settings on connection issues

When you don't need to do active steering and need to get the data very often it's advised to change the settings of the data polling. Our older sticks are not the best in replying so to not overload the sticks we can adjust the poling settings.

[Home](#)
[Devices](#)
[Groups](#)
[External data sources](#)
[Link to Insights](#)
[Settings](#)
[Manual](#)
[Data](#)
[Logout](#)

Settings

Main circuit breaker nominal current (A)

35

Grid system

Single phase 230V

Allowed grid import power (kW)

The smart grid controller uses this as a reference of the maximum import power it may allow and will try to control the connected devices to not go beyond this limit.
Note, this limit will be adjusted to be at most the power allowed by the main circuit breaker.

Advanced settings

[Go to advanced settings](#)

Adjust the Data reading period (seconds) to 5 seconds. This makes sure that we still get proper data into MyAutarco and the EMS Controller can steer for example on smart charging. make sure to press “Save”

[Home](#)
[Devices](#)
[Groups](#)
[External data sources](#)
[Link to Insights](#)
[Settings](#)
[Manual](#)
[Data](#)
[Logout](#)

Advanced settings

Setting	Current value	New value	Save
Data reading period (seconds) ⓘ	90.0	<input type="text" value="2"/>	Save
Cloud downsampling period (seconds) ⓘ	0	<input type="text" value="0"/>	Save
Cloud upload period (seconds) ⓘ	0	<input type="text" value="0"/>	Save
Metadata synchronization period (seconds) ⓘ	10	<input type="text" value="10"/>	Save
Scheduler run period (seconds) ⓘ	20	<input type="text" value="20"/>	Save

The EMS controller is the big brain of the whole system it needs to retrieve all the data from all the devices and than based on that make decisions on steering and what to do.

The EMS controller is primarily a reactive solution, meaning it operates based on retrieved information. As a result, there is always a delay between the actual event and the controller's response. If certain devices are slow to respond or slow in providing data, this can trigger a chain reaction—where delayed information and sluggish responses cause the EMS controller to oversteer or overreact to the situation. To prevent this happening, you can change the time between the commands send by the EMS Controller.


- Go into the controller.
- Go to settings.
- Go to advanced settings.

Advanced settings

[Go to advanced settings](#)

Change the highlighted setting “Scheduler run period (seconds)” to a higher number. The EMS will steer slower but will have less oscillations.

NOTE: don't change this to higher in situations where high peak load can cause a broken fuse.

<div>  Home Devices Groups External data sources Link to app & portal Settings Manual Data Logout </div>				
Advanced settings				
Setting	Help	Current value	New value	Save
Data reading period (seconds)	①	5.0	5.0	Save
Scheduler run period (seconds)	①	10.0	10.0	Save
Enable device setting check	①	True	True	Save
Disable scheduler	①	False	False	Save
Cost optimization agressiveness	①	Reduced risk	Reduced risk	Save

When doing debugging on EMS Controllers the interface is blocked for user input. In that period, it will show that the controller is booting. Or it could be that a software update was not successful. In both cases contact Autarco to get more information on the status. Please make sure to note down the EMS controller Serial number before reaching out.

Adding devices to the EMS controller to be steered is the hardest part of the setup. Each device reacts different and each network is also different. This makes it hard to have a one perfect solution described in the manual. Common causes that may cause why the device is not being found by the EMS Controller

General

- Double check if the device is supported in the supported hardware list
- When adding devices the EMS Controller checks if the read values are sensible. If they are not, it will not recognise the device. For this the device should be in fully operational state.
- Double check if the wiring is connected correctly.

TCP/IP

- Device is not TCP/IP communication enabled
- Devices do not have the same IP Address range
- One or more devices are on a WiFi repeater and therefor can not find each other
- The device is responding not fast enough (use the slow scan option with timeout)

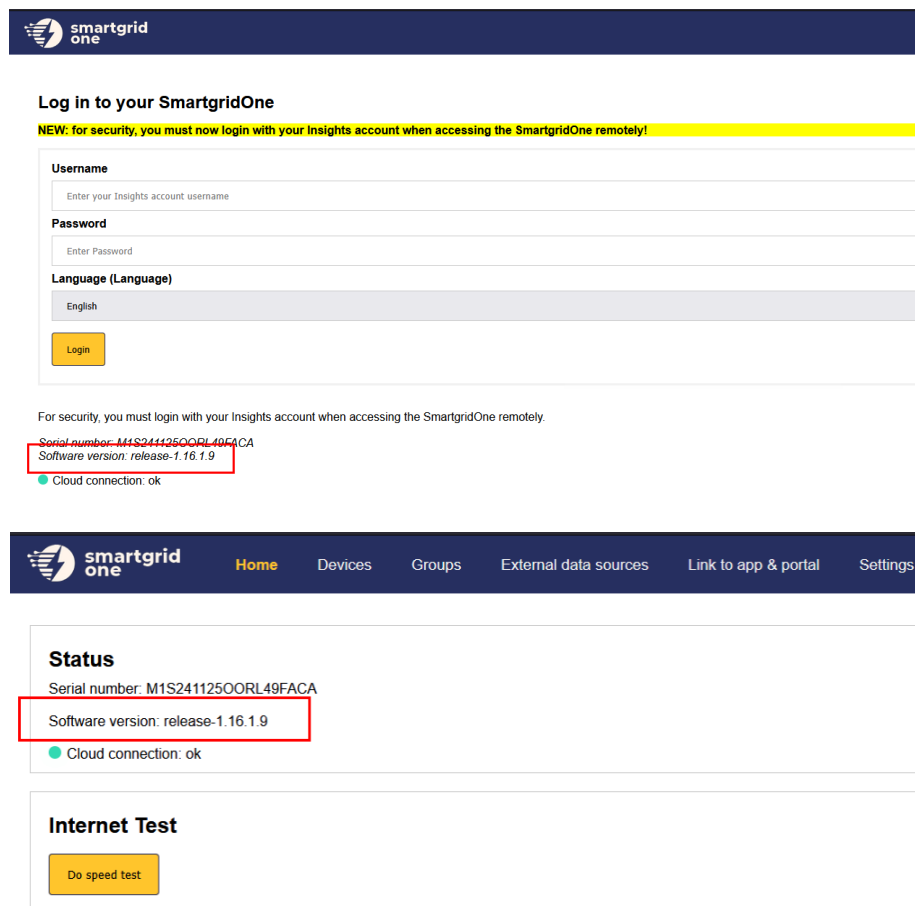
RS485

- Some devices may require an end resistor of 120 Ohm when connecting with RS485
- Make sure the correct Modbus address is set and that devices are not on the same address
- Make sure the dipswitches on the EMS Controller are all set to ON.

When trying to add a device such as a cabinet, it can happen that the controller runs into an error. We are constantly working on improvements and to give you the best experience we advise to be on the latest Firmware version.

First devices supported from firmware 1.16.X.X If your controller has a lower version than that make sure to update it.

Autarco personnel can manually update controllers to higher version if checking for updates is not working. Feel free to reach out for assistant!

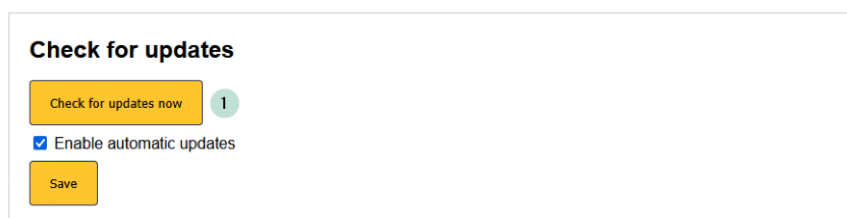


The image shows two screenshots of the Smartgrid one web interface. The top screenshot is the login page, featuring a dark blue header with the 'smartgrid one' logo. Below the header, there's a section titled 'Log in to your SmartgridOne' with a yellow warning banner: 'NEW: for security, you must now login with your Insights account when accessing the SmartgridOne remotely!'. The login form includes fields for 'Username' (with placeholder 'Enter your Insights account username'), 'Password' (with placeholder 'Enter Password'), and 'Language (Language)' (with 'English' selected). A yellow 'Login' button is at the bottom. Below the form, a message states: 'For security, you must login with your Insights account when accessing the SmartgridOne remotely.' Below this, a red box highlights the serial number 'M1S241125OORL49FACA' and the software version 'release-1.16.1.9'. A green dot indicates 'Cloud connection: ok'.

The bottom screenshot shows the 'Status' section of the interface. It has a dark blue header with the 'smartgrid one' logo and navigation links: 'Home', 'Devices', 'Groups', 'External data sources', 'Link to app & portal', and 'Settings'. The 'Status' section displays the serial number 'M1S241125OORL49FACA' and the software version 'release-1.16.1.9', which is highlighted by a red box. A green dot indicates 'Cloud connection: ok'.

Below the 'Status' section is the 'Internet Test' section, which contains a yellow button labeled 'Do speed test'.

Under settings you can find the button to check for updates.



The image shows the 'Check for updates' section of the Smartgrid one web interface. It has a dark blue header with the 'smartgrid one' logo. Below the header, there's a section titled 'Check for updates'. It features a yellow button labeled 'Check for updates now' with a green circle containing the number '1' next to it. Below the button, there's a checkbox labeled 'Enable automatic updates' which is checked. At the bottom, there's a yellow button labeled 'Save'.

[Online trouble shooting guide](#)

10 Setting up imbalance market with Frank Energie

As this may change over time, the online documentation can be found here:

[Frank Energie setup](#)