(max. 12 A)

CAN-Datenkabel
twisted pair Kabel
MyReserve↔ACS

RS485-Datenkabel
twisted pair Kabel + GND
WR↔EnergyManager

PV+ PV-

WR+ WR-

L1 L2 L3 N PE

N L1 L2 L3
OUT

AC-Sensor 50

IN
L1 L2 L3

CAN-EM CAN-MR
H L ↓ ↓ ↓ ↓ H L

⊙⊙⊙⊙⊙⊙⊙⊙

A B ↓ A B ↓ RX TX ↓   USB
RS485-1   RS485-2   RS232

○ DEVICE   ○ SOLARWATT®
○ BUS   EnergyManager
○ INTERNET

24V | S0-1 S0-2 | HA | CAN
- + | + -| + - | + - | ↓ H L   RESET   LAN   EASY

⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙   ●   ◉

LAN-Kabel
EnergyMar

Spannungs-
versorgung
EnergyManager
24 V

DC
AC
L   N

F1

SOLARWATT ENERGYMANAGER

SOLARWATT®
power to the people

Content

1   Safety instructions

⚡ HAZARD

The SOLARWATT EnergyManager should only be commissioned by a qualified electrician who is an approved SOLARWATT installer! There is a risk of electric shock.

Intended use

The product is built using state-of-the-art technology and recognized good engineering practices. However, damage to the device and other property may occur if the device is used improperly or not as intended. The product is used for multiple purposes including energy management in a household. Any use differing from or exceeding these intended uses is considered incorrect usage. The manufacturer/supplier is not liable for the resulting damages. The owner solely bears the risk. The intended use also requires compliance with the operating and installation manual and all other applicable documents.

General safety instructions

Installation of the product may only be carried out by a recognized skilled, trained and approved technician. This person also assumes responsibility for the correct installation and commissioning. Observe all safety instructions provided on the packaging and affixed to the device when working with the product. Check to ensure that there is no damage to the device, the accessories and the mains adapter prior to commissioning and on a regular basis during operation. In case of doubt, have an electrician inspect the equipment to ensure that it is sound. If there is any damage to the product or repairs are needed, these tasks may only be entrusted to authorized persons. Ensure that the appropriate mains adapter is used and that the mains voltage of the unit matches the mains voltage in your country. The product should only be operated with the mains adapter supplied. If a different 24 V mains adapter is used, the manufacturer/supplier shall not be held liable for any resulting damages. Do not open the EnergyManager or the mains adapter! Removal of or damage to the housing may expose live parts and impair the function of the equipment.

Prevention of damage

The product is only suitable for installation in dry, dust-free indoor areas. Protect the unit from dust, damp, moisture, aggressive substances and vapor. The ambient temperature must be between -10°C and +50°C. Do not touch any electronic components or connections on the EnergyManager, because this may damage or destroy the equipment. Ground before working on the device. When connecting the mains adapter, ensure that the mains adapter is not placed in a warm environment in the immediate vicinity of a cold environment and ensure sufficient temperature equalization. Commissioning when there is condensation on the equipment poses a life-threatening danger! If the product or mains adapter is damaged or destroyed, it must immediately be decommissioned by a qualified expert. Only operate the product when the device is in technically sound condition. Always contact a qualified technician when there are error messages on the device.

Data Security

In order to be able to make full use of the product's scope of functions, the device should be connected to the local network and the internet. Although the communication channel between the product and the Internet services is secured using state-of-the-art technology, connection to the network/Internet entails security risks: Third parties could gain access to your network and misuse your energy data. Please proceed cautiously by using passwords to enable access to your network, as you would to protect the data on your computer.

Protection of your personal energy data has the highest priority. The EnergyManager platform is continuously updated to state-of-the-art security technology in order to guarantee that energy data can only be viewed by the owner and authorized participants. The data collected by the EnergyManager may differ from the data of the electric meter. The EnergyManager data is not suitable for billing purposes..

2 About this manual

Special symbols are used in this manual to delineate and emphasize notices, information and useful tips.

⚠ *ATTENTION*

Identified important information in particular for electrical connection of components of the energy system.

⚠ *IMPORTANT*

Identifies important information for access URLs and the procedure for planning and installation of the EnergyManager.

⚠ *TIP*

Identifies helpful tips for the procedure for planning and installation of the EnergyManager.

3   Preparation and planning checklist

To make the installation of the EnergyManager at your customer's location as smooth as possible, prepare for installation based on the following checklist.

⚠ *IMPORTANT*

This checklist must be used for preparation for installation of the EnergyManager before going to the customer location. This will cut back on additional work and time-consuming inquiries.

3.1   Preparation and planning checklist > Requirements for the customer

☐   DSL flat rate internet (minimum 6 Mbit/s) available?
☐   1x free LAN interface available on router for EnergyManager?
☐   1x free LAN interface per inverter available on the router?
(if integrated via Ethernet, e.g. Sun-Spec interface)?

⚠ *TIP*

In order to ensure fast data transmission even in high network traffic, it is beneficial to establish connection of all devices integrated via Ethernet in the system with a switch.

☐   Is there sufficient room for all devices on the busbar in the switch cabinet?

> ☐   6 RU EnergyManager
> ☐   3 RU EnergyManager mains adapter
> ☐   6 RU SOLARWATT AC sensor
> ☐   1 RU relay (optional)
> ☐   1 RU (per) one-phase S0 meter (optional)
> ☐   4 RU (per) three-phase EnergyMeter (optional)
> ☐   3 RU (per) optional extension of the EnergyManager

☐   Topology clarified for building installation (refer to Chapter 5)?

☐   AC sensor as main EnergyManager meter and ONE inverter
☐   AC sensor as main EnergyManager meter and TWO inverters
☐   Two-direction meter as main EnergyManager meter
☐   One-direction meter as main EnergyManager meter

⚠ ***IMPORTANT***

Prior to installation, check the conditions of the building's electrical installation and carry out the configuration corresponding to the wiring diagram.

3.2   Preparation and planning checklist > Inverters to be integrated

Connection of supporting inverters to the EnergyManager takes place:

- with a communication cable (ATTENTION: not included in the scope of supply) with the RS485 interface (Chapter 6.2.1) or
- via Ethernet (Chapter 6.2.2)

An additional meter (e.g. SOLARWATT EnergyMeter) can be used to detect the yield for unsupported inverters (Chapter 6.2.3).

⚠ ***IMPORTANT***

Determine which inverter type your customer has prior to installation.

The system supports the following brands (or types). For the latest information on supported inverter types, please refer to the detailed „List of supported inverters" at www.solarwatt.de.

Inverters which can be integrated > Via RS485 interface:

☐ SMA (older generation)
(**ATTENTION!** Check whether the inverter has an RS485 interface. It may be necessary to retrofit an SMA RS485 PiggyBack.)
☐ KOSTAL PIKO
☐ StecaGrid coolcept
☐ SolarEdge
(**ATTENTION!** There is no option to regulate the inverters for SolarEdge devices via the EnergyManager.)

⚠ *ATTENTION*

We recommend terminating the RS485 data bus with a load resistor in both the initial and terminal devices.

Inverters to be integrated > Via Ethernet:

☐ SMA (SunSpec-certifizied devices)
☐ Fronius

⚠ *TIP*

If the inverter is integrated via Ethernet, you need its IP address, which can be found with network scanning programs such as Network Scanner (Windows), Fing (Android), Connection Assist (SMA) or Datalogger Finder (Fronius). Use these programs to search based on the MAC address on the device label.)
ATTENTION! *A network scan requires the prior consent of your customer!*

Inverters to be integrated > Via S0 interface:

☐ Other

Other devices can be read using an additional meter (SOLARWATT EnergyMeter) to document yields. However, the inverters output cannot be regulated via the EnergyManager.

4   Useful registrations

Registration of the installer in the InstallerCenter:
☐ Yes   ☐ No
        if no, proceed to Chapter 4.1

Invitation of the customer to register in the EnergyManager Portal:
☐ Yes   ☐ No
        if no, proceed to Chapter 4.2

If both registrations have already been carried out, proceed to Chapter 5.

4.1   Registration of the installer in the Installer Center

Your registration in the InstallerCenter enables you to do the following:

- Practical online monitoring for all EnergyManager installations
- Quick identification of problems and their cause
- Remote access to all EnergyManager configurations

⚠ IMPORTANT

Access to the Installer Center always takes place via the following URL:
http://installer.energy-manager.de

Select **register** on the start page of the Installer Center and mark the button in front of **Installer**.

Specify your access (login) data and enter you company information in the fields of the form. After successful registration, you are automatically logged into the InstallerCenter and receive a confirmation email.
If you would like to log in the InstallerCenter again, the previously specified URL applies.

4.2   Invitation of the customer to the EnergyManager Portal

Registration of the system owner for the EnergyManager Portal serves the following purposes:

- Customer access to the SOLARWATT EnergyManager Portal
- Association of the EnergyManager with the customer

⚠ *TIP*

Invite your customer to register for the EnergyManager Portal BEFORE the installation of the EnergyManager.

Log into the InstallerCenter and select **Invite customer to Portal**. Enter all the required customer details in order to send the invitation.

⚠ *IMPORTANT*
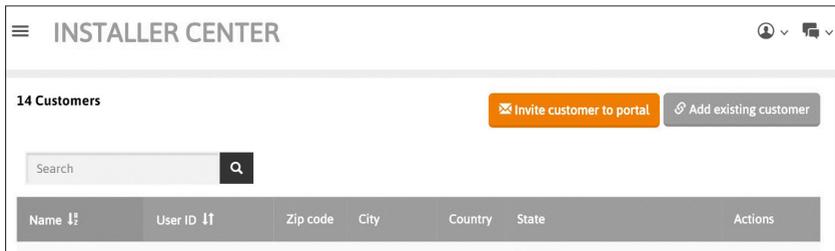
If your customer grants you and/or SOLARWATT access to their Energy-Manager even outside of their network in the event of a service, then they have to explicitly agree to this. The customer receives the request for agreement with their invitation email to the portal.

5 Layout of the building installation

5.1 Layout of the building installation > MyReserve and ONE PV system

The AC Sensor is the main EnergyManager meter. MyReserve and the connected PV system must always be wired on the **house side**.

⚠️ *ATTENTION*

*The AC sensor must be inserted in series **between the House Main Switch and the House loads**!*

RIGHT!

house side producer: PV-Location

Main Terminal Block L1 L2 L3 N PE — house side consumers

EneryManager main meter: AC-Sensor

PSC meter

RIGHT!

house side producer: PV-Location

Main Terminal Block L1 L2 L3 N PE

EneryManager main meter: AC-Sensor — house side consumers

PSC meter

RIGHT!

house side producer: PV-Location

Main Terminal Block L1 L2 L3 N PE — house side consumers

PSC meter — EneryManager main meter: AC-Sensor

WRONG!

house side producer: PV-Location

Main Terminal Block L1 L2 L3 N PE

EneryManager main meter: AC-Sensor — house side consumers

PSC meter
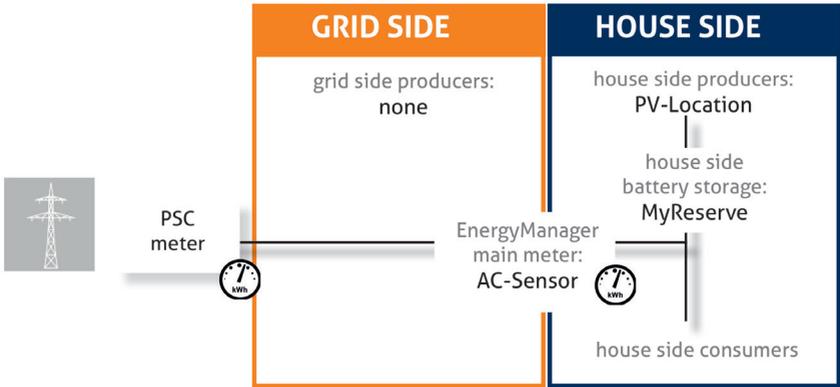
5.2 Layout of the building installation > 2-direction meter and TWO PV systems

A 2-direction meter is the main EnergyManager meter MyReserve and the connected PV system must always be wired on the **house side**. The second PV system can be integrated on the **grid side** (figure above) or the **house side** (figure below).
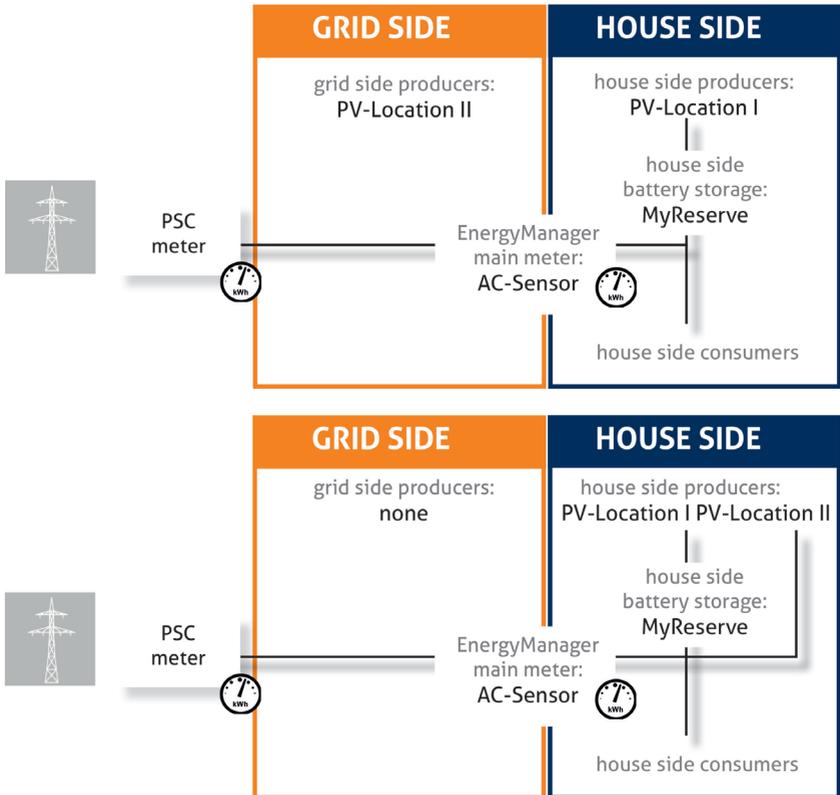
⚠ *ATTENTION*

*The AC sensor must be inserted in series **between the House Main Switch and the House loads**!*
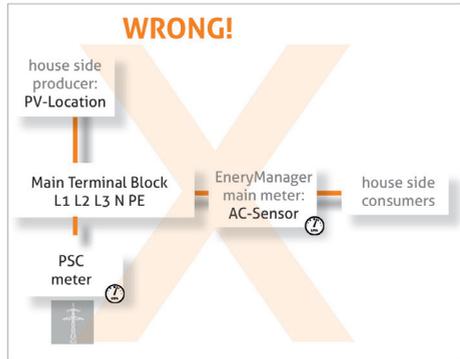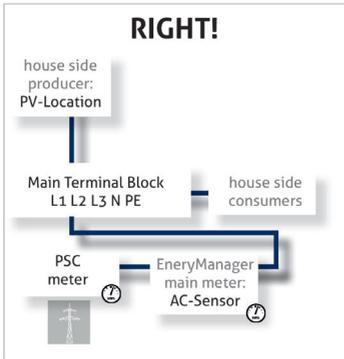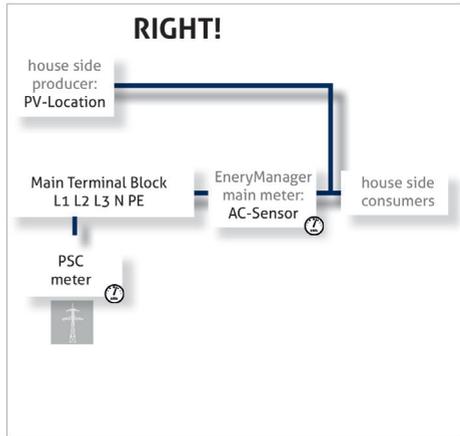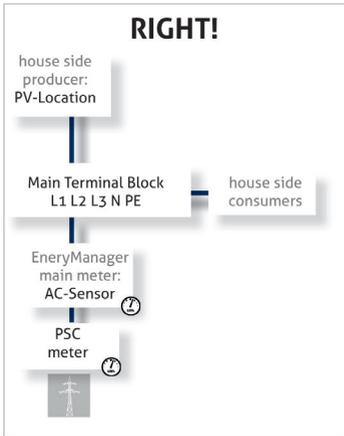
5.3   Layout of the building installation > Single-direction inverter

A single-direction meter is the main EnergyManager meter The PV system must always be wired on the mains side using a single-direction meter as the main EnergyManager meter.

Abb: Verkabelung 1-Richtungszähler

GRID SIDE	HOUSE SIDE
grid side producers: PV-Location	house side producers: none

PSC meter

EnergyManager main meter: 1-directional meter

house side consumers
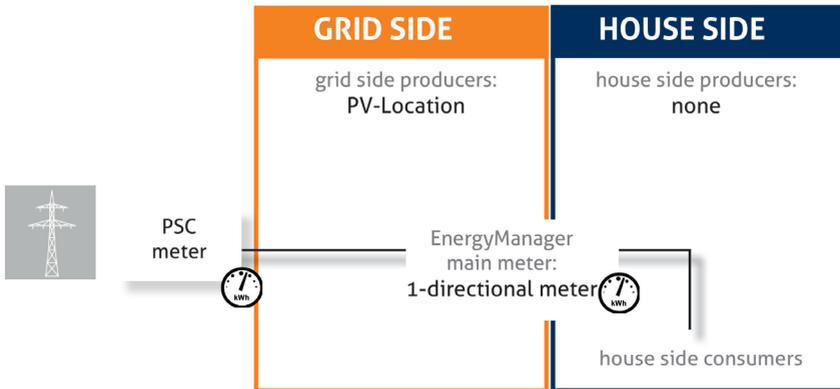
6   Installation

6.1   Installation > Installation of the EnergyManager

Remove the 24-V-DC mains adapter and the EnergyManager from the packaging.
Install the two devices on the top-hat DIN rail.

⚠ *ATTENTION*

Do not forget to remove the battery tag.

Insert he supplied termination plug on the right-hand side of the EnergyManager or -if you install one or more extensions- on the right-hand side of the last extension. Ensure all pins are correctly aligned.
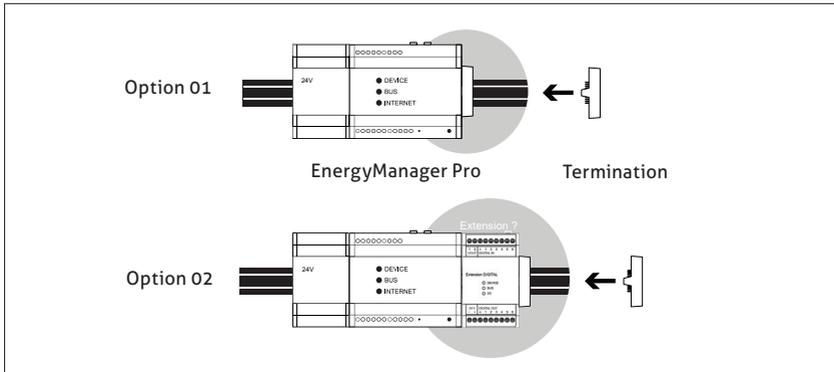
6.2 Installation > Connection to the inverter

Connection of the inverter to the EnergyManager can take place three different ways:

- with a communication cable with the RS485 interface (Chapter 6.2.1 only for approved inverters)
- via Ethernet (Chapter 6.2.2) or
- via an S0 interface (Chapter 6.2.3).

⚠ ATTENTION

Observe ALL manufacturer's instructions during installation.

⚡ HAZARD

There is a risk of electric shock. Connect the devices in a de-energized state.

6.2.1. Installation > Connection to the inverter > Connection via RS485 interface for approved inverters only

Connect the inverter via data cable (ATTENTION, not included) to the EnergyManager as shown in the diagram.
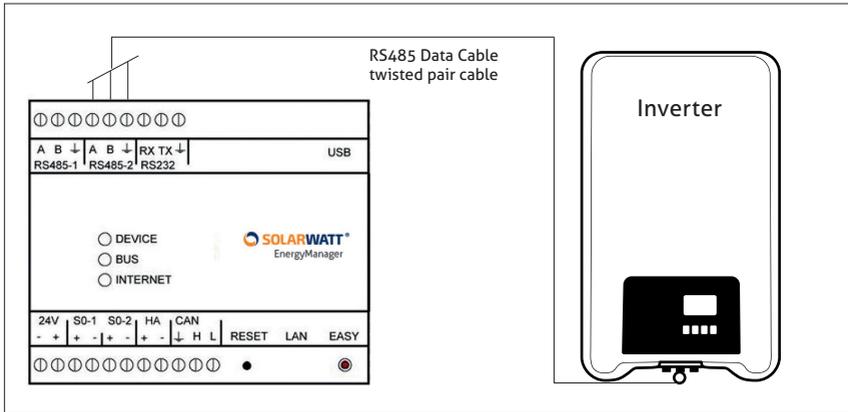
Connection of the inverter (RS485) assignment

SOLARWATT EnergyManager	Terminal block	A	B	GND
StecaGrid coolcept	Plug pin assignment	1	2	8
SMA Sunnyboy/Tripower	Piggy Back	2	7	5
Kostal	Internal terminal block	A	B	GND
SolarEdge	Internal terminal block	A	B	GND

⚠ ATTENTION

If using the RS485 connection we recommend terminating the RS485 data bus with a load resistor in both the initial and terminal devices.

6.2.2. Connection to the inverter > Connection via Ethernet

Connect the inverter via the customer network to the EnergyManager as shown in the diagram. Refer to the inverter manual for set up of external connections.
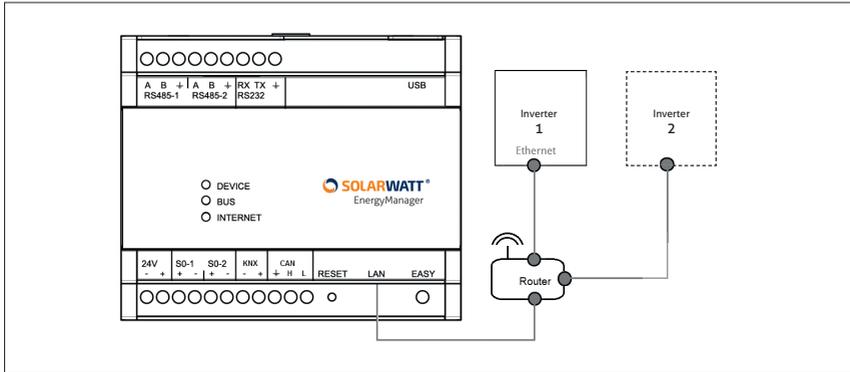
⚠ ATTENTION

There may be distinctive features involved with integration into the customer network via Ethernet, depending on the inverter type. Always following the relevant inverter manufacturers installation manual.

⚠ TIP

We recommend Ethernet connection via LAN cable in order to become less prone to interference (from WLAN).

⚠ TIP

A detailed description of the integration of inverters by the major manufacturers via Ethernet is provided in the technical appendix of this manual.

6.2.3. Connection to the inverter > Connection via S0 interface

Other devices can be read using an energy meter (e.g. SOLARWATT EnergyMeter) to document yields. However, the inverters **cannot** be regulated via the EnergyManager.

Connect the energy meter to the supply cable of the inverter. In the process, ensure the correct connection direction (current flow direction) on the energy meter.
Connect the pulse output to the EnergyManager.
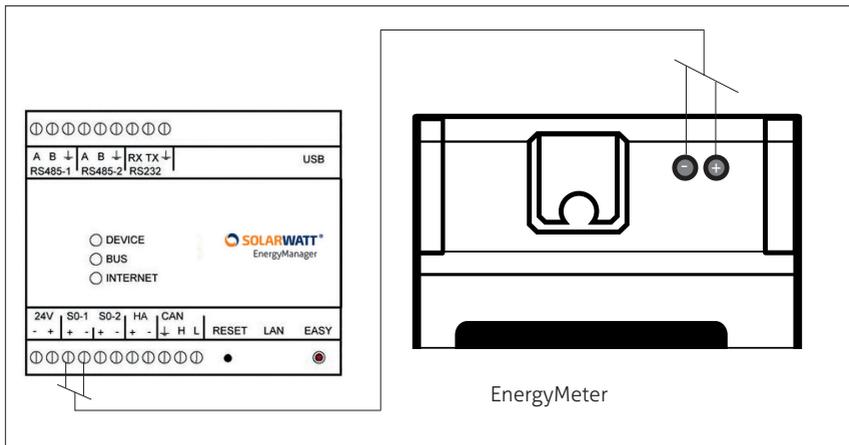
EnergyMeter

⚠️ *ATTENTION*

Frequent source of error with use of the SOLARWATT EnergyMeter! Ensure correct polarity of the PULSE connection between the Energy Meter and the Energy Manager.

⚠️ *TIP*

When planning for installation, bear in mind that the EnergyManager only has two S0 interfaces, one of which is occupied by a consumption meter. If you need more S0 interfaces, you can extend the EnergyManager with a SOLARWATT Digital Extension that provides six additional S0 interfaces.

6.3   Installation > Connection to MyReserve

The data connection to the MyReserve is made with a CAN data cable (Cable for CAN communication, minimum Cat5.e with twisted pairs) to the AC Sensor (detailed circuit diagram in the technical appendix of these instructions, Chapter 12).
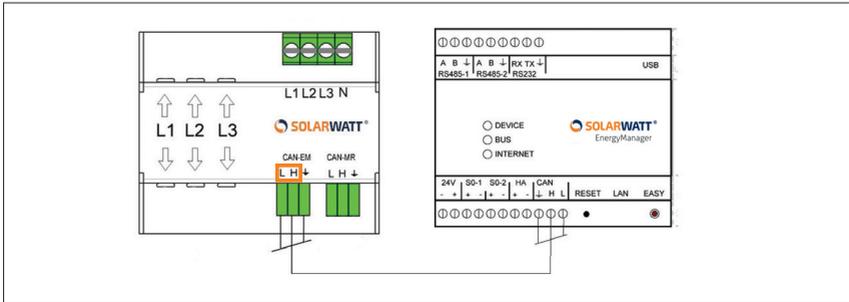
⚠ ATTENTION

Connect the devices in a de-energized state. There is a risk of electric shock. Please also follow the SOLARWATT MyReserve Installation and User's Guide.

⚠ ATTENTION

Use one twisted wire pair for H and L and an additional wire for ground.

6.4 Installation > Connection to the internet

Connect the EnergyManager using the supplied network cable (LAN cable) to your customer's home network router.

⚠ *TIP*

In order to ensure fast data transmission even in high network traffic, it is beneficial to establish connection of all devices integrated via Ethernet in the system with a separate switch that is connected to the router.
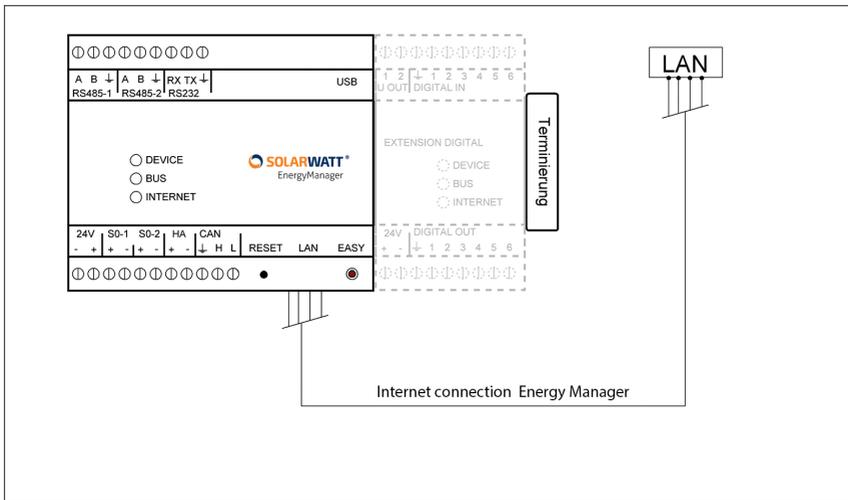
6.5 Installation > Voltage supply and booting process

Use the supplied mains to 24V-DC adapter for the EnergyManager. Ensure the correct polarity of the supply. Switch on the 230V supply to the mains adapter.
Wait for the booting process to finish. EnergyManager updates to the latest software version automatically. The may take up to 10 minutes depending on the customers internet speed.
The booting process is completed when DEVICE and INTERNET LED on the EnergyManager stop flashing and illuminate continuously.

7   Access to the EnergyManager

The EnergyManager is now connected to the customer network and anyone in the network can access the EnergyManager interface.
To configure the EnergyManager you must be **onsite and connected to the same network** as the EnergyManager. Access and setup of the EnergyManager and all connected devices take place via the configuration interface (Web UI) of the EnergyManager.

⚠ *IMPORTANT*

The EnergyManager is accessed in the customer network via the URL:

OS X (Apple) or Linux operating system :
http://energymanager.local/

Windows operating system :
http://energymanager/

If it is not possible to access via entry of the URL, please attempt the following alternatives:

* *Open a „private window" in the browser (incognito mode)*
* *Use a different browser*
* *Enter the IP address of the EnergyMeter (can be found with network scanning programs such as Network Scanner (Windows) or Fing (Android).*

ATTENTION! A network scan requires the prior consent of your customer!

f you do not have access to the customer network, but would like to carry out the basic setup of the EnergyManager, you can carry out the following alternative steps:

1. Press and hold the EASY button for six seconds until the Internet LED illuminates orange. The EnergyManager is now in maintenance mode.
2. Connect your notebook with a network cable (not included in the scope of supply) directly to the EnergyManager.
3. (for non-Windows systems) Configure your own IP address to 169.254.0.1.

4. Windows users do not normally have to carry out this setting. You receive this IP address directly in a network without DHCP server.
5. Enter http://169.254.0.10 in your browser.
6. Then carry out all setup functions. The only limitation is that it is **not possible for Ethernet-based devices** (Plugwise, Fronius), because there is no connection to the network in maintenance mode.
7. After completion: Press the EASY button again for six seconds or restart the EnergyManager in order to exit maintenance mode.
8. Re-connect the EnergyManager to the router.

8   Set up date and time

In order to ensure that the display of all charts and time series provided by the EnergyManager for the EnergyManager Portal correspond to the time conditions at your customer site, it is necessary to set the correct time zone under **System settings / Set up date and time**.
In the dropdown menu select the city, which corresponds to the time zone in which the EnergyManager is working and confirm with **Save**.

9   EnergyManager setup (SmartSetup)

The **EnergyManager Portal setup** is designed to correctly record and assign a fixed system role to all components surrounding the Energy-Manager.

To start the setup, select **Smart Setup** in the **Applications** tab of the configuration interface.

SmartSetup

9.1   EnergyManager setup > Search devices

In the drop-down menu, select the devices included in the customer's energy system (inverters, energy meters, batteries, consumers).

If you enter the manufacturer name of the devices, the auto-fill function will make them easier to find in the drop-down list.
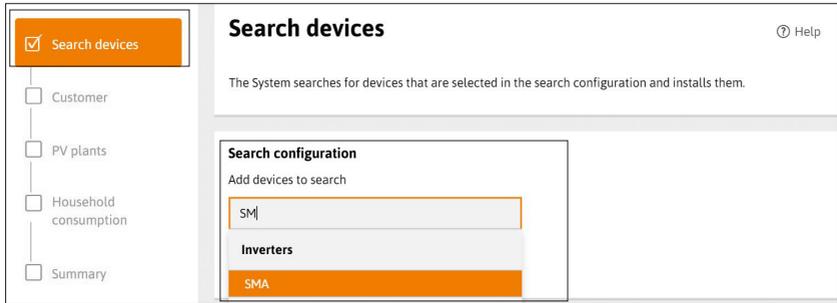
A pop-up dialog (differing depending on the device) shows you what is still required in order to correctly add the device to the search list. Confirm the dialog with **Add device to the search**.
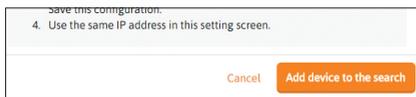
If your search list is complete, press the **Search and install devices** button.

⚠ *TIP*
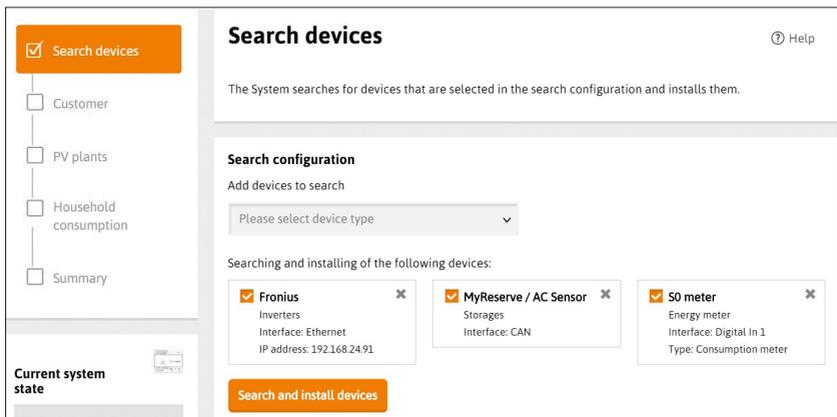
In the case of MyReserve, the AC sensor is automatically displayed in the results list. You do not have to add it to the search list separately.

The search for the device may take a few minutes.

Should you need to repeat the search process, in order to save time, you can exclude already found devices from the next search process. Just uncheck the orange box next to the device name (1). In order to completely delete a device from the search list, Click the X on the right next to the device name (2).
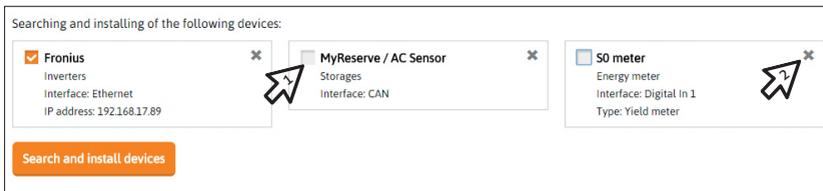
If an error occurs during the device search, the corresponding device is marked red in the list and the error is briefly described. By clicking the reason shown (highlighted in yellow) behind the error you receive information on error causes and troubleshooting in a pop-up window.

In order to remove devices from the device list, click **Delete devices** in the bottom left of the list and select the device that you would like to remove.

A successful device search is displayed in the EnergyManager status field (left on menu bar). Furthermore, all devices, including their details, appear in the list with green checkmarks.

After the device search, press the Continue button on the bottom right of the page.

⚠️ *IMPORTANT*

*If the device list still includes errors, the **Search devices** item will be shown to you with an exclamation point.*
However, you can still continue the setup process

9.2   EnergyManager setup > Customer

You should have already invited your customers to register for the EnergyManager Portal via your account in the InstallerCenter (see Chapter 4.2) His invitation email also includes the option for the customer to give you and/or SOLARWATT access to their EnergyManager outside of their network should service be required.

The **Customer** tab shows you whether the customer has given their agreement to live support and remote access.

If you have not yet registered your customer for registration in the EnergyManager Portal, you can send the invitation to your customer now.

For this, click Invite customer, log into the InstallerCenter and enter the required customer details to send the invitation.
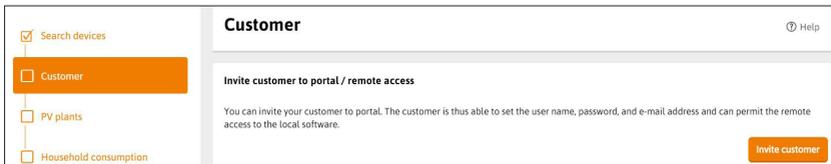
Then add the ZIP code, city, and country of the customer for the weather forecast. Please also enter the current electricity price.

Confirm your details with **Save and continue**.

9.3   EnergyManager setup > PV plants

The **PV plants** category serves to clearly record all the PV systems of your customer in the system as well as to assign the corresponding inverters and, if applicable, batteries.

First press the **Add PV plant** button. Assign inverters and batteries to the PV plant and record the installation and address details of the system.

⚠ *TIPP*

Under some circumstances, assigning each inverter in the system to a PV part (="PV plant") will provide a clearer arrangement.

You can create further PV systems via the **Add another PV plant** button, and follow the same process as above.

When creating numerous PV systems, make sure you differentiate the systems clearly naming them for your overview later on. You can edit the names in the installation details in the **Name of the PV plant** field.

Should it be required in your country or region to limit the feed-in of PV electricity, there is, if required, also the option to configure the dynamic infeed limiter of the inverter.

The EnergyManager ensures that the amount of power fed to the public grid at the mains feed point does not exceed the percentage that you have specified. This calculation also includes electricity used from the grid so the percentage is based on overall energy balance and not just what is fed-in.

⚠ IMPORTANT

Once you have limited one inverter, the same settings will be applied to all grid-feeding inverters in your system.

⚠ TIP

In order to test the effect of the limiter, enter a very low value (e.g. 10%) once.

9.4   EnergyManager setup > Household consumption

The **Household consumption** category is used to uniquely locate all major consumers so that EnergyManager can issue the correct results and figures in the balance sheet.
For this, first define the **Position of the primary meter** as **Between grid and PV plant** or **Between grid and consumers**.

⚠️ *IMPORTANT*

The primary meter is not the meter of the energy supply company (ESC meter) but the meter that measures the overall consumption of the household directly (via a consumption meter) or indirectly (e.g. via a feed and withdrawing meter).

Depending on how the wiring was done in the building (see Chapter 5 layout of the building installation) all **consumers, generators**, and **batteries** included have to be assigned as Recorded by the **primary meter ("house-side")**, **Not recorded by the primary meter ("grid-side")** or **Not balanced device**.

Assigning takes place via the **Assign devices automatically** button, but can also be manually changed by selecting the **Change device assignment** control panel behind each device.

Manually assign all devices that are not included in the calculation of the household consumption into the **Not balanced devices** category, as they are not recorded by the power supply company meter. This relates to PV systems that are fully feeding in or devices with their own tariff, for example, such as a heat pump.

Confirm the assignment with **Save and continue**.

9.5 EnergyManager setup > Summary

The **Summary** shows you all the details of the configuration again in a clear overview.

You also have the option to **lock the configuration** with a password. This means that no values (e.g. for the limiter) can be changed without re-entering the password.

Confirm **Save and finish configuration** at the end of the page.

After successfully finishing the configuration there is the option to download all the details and print them out.

10   Commissioning log

After successful installation of the SOLARWATT EnergyManager, please fill out the entire commissioning report and sign it. Leave a copy of the completed report with the customer.

The commissioning report documents your installation and provides the customer with a record of the settings and configuration that you have made.

A template for the commissioning report is provided in the technical appendix of this manual (Chapter 12). You can also find the latest version of the report in the download area on our website www.solarwatt.com.

11   First steps in the EnergyManager Portal

The EnergyManager Portal makes processes and data of the EnergyManager visible for your customers via internet on their computers, tablets or smartphones.

With the EnergyManager Portal, your customer can control via the optional load controllers many important energy consumers in the building so that they can be operated with free PV electricity generated within their own PV system and spare the environment.

⚠ *IMPORTANT*

Run through the first steps in the EnergyManager Portal together with your customer. Show them how to access the portal and the area in which they can change their personal information. Explain the most important views and functions and hand over the user manual for the EnergyManager Portal.

12   FAQ

What do the LEDs on the EnergyManager mean?
Mode: Normal operation
Device LED [continuously illuminated]
Bus LED - [continuously illuminated - only with extension installed]
Internet LED [continuously illuminated]

Mode: Firmware update
Device LED - [flashes green]
Bus LED - [not required]
Internet LED [continuously illuminated]

Mode: EnergyManager restart
Device LED - [flashes green]
Bus LED - [extension installed - illuminated continuously green during restart]
Internet LED - [flashes green]
Note: Access to the configuration interface of the EnergyManager is not possible during firmware updates or restarts.

No communication can be established via the RS485 bus to one or multiple inverters.
(1) Restart of the inverter, if necessary after restart of the EnergyManager
(2) Inspect the cable for damage and the correct PIN assignment - on both ends!
(3) Terminate the RS485 communications bus with a terminating resistor.
(4) Ensure that there are no address conflicts in the RS485 bus. This can be set up on the inverter (Kostal / Steca).
(5) Perform a device search or EasyInstall.

The S0 energy meter displays a communications fault in the device list.
S0 energy meter status will not change to green until the EnergyManager has received at least two pulses.

How do I restart the EnergyManager?
You can restart the EnergyManager in one of two ways:

Restarting through the online UI
Actuate the gear at the top right next to the language setting in Web-UI. Select „Restart". Enter the device password if prompted to do so.

Restarting using the hardware button
Press and hold the Reset button on the device for more than 12 seconds. The device will restart.
Restarting the EnergyManager normally takes about 20-30 seconds. Please wait until that much time has passed before continuing, to ensure that the system will run smoothly. Once all LEDs are continuously illuminated and the online interface is available again, the restart process is complete.

13   Technical appendix

13.1 Integration of a Fronius inverter via Ethernet

Connect the inverter to the EnergyManager as shown in the diagram under 7.2.2: Then commission the inverter.

⚠️ *IMPORTANT*

In order to ensure that the Fronius data manager can be installed when there is not sufficient DC voltage, you must activate night mode.
Open the SETUP menu item on the display of the inverter and select the display Settings submenu.
Select the Night mode entry and the setting ON.
Confirm with Enter.
After you have successfully started up the Fronius data manager, deactivate night mode.

Connect your laptop to the customer network (via LAN cable or via WLAN).
Open the Fronius commissioning assistant by opening the following URL in your web browser: **http://datamanager**

⚠ *TIPP*

If you do not know the IP address of the inverter, use a network scanning program, such as Network Scanner (Windows), Fing (Android) or Datalogger Finder (Fronius).

ATTENTION! A network scan requires the prior consent of your customer!

Use these programs to search for the MAC address that is found on the device label!

Click the **TECHNICIAN WIZARD** button.

Follow all the installation steps and fill out the forms of the submenus. Mark the **No limit** radio button in the Dynamic power submenu, then click **Forward**.
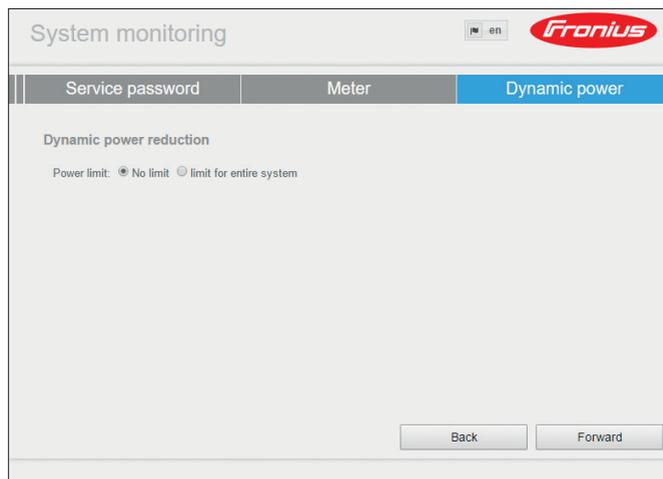
Switch to the **SOLAR WEB ASSISTANT**.

Fill out the **IP address, subnet mask, gateway, and DNS server** fields in the **Network setup** submenu.

Mark the **dynamic** radio button and click on **Connect**.

⚠️ **TIP**

Set the DHCP settings in the router in such a way that the inverter is always assigned the same IP address. Otherwise, in routers that do not support name resolution, it could result in a connection failure when switching IP address.
Alternatively, you can also set the network settings of the IP address to „static" in Fronius. Ensure that the IP address is not already assigned in the network and it is outside of the DHCP area of the router.

Follow all the installation steps, fill out the forms of the submenus and click on **Save**.

Then select the **Settings** button and the **MODBUS** page menu.
Mark the **tcp** radio button under **Data output via Modbus** and click
the **checkmark**.

13.2   Integration of an SMA SUNNY BOY 1.5/2.5 via Ethernet

⚠ *IMPORTANT*

For the following steps, the inverter must already be integrated into the customer's network.

Connect the inverter to the EnergyManager as shown in the diagram Then commission the inverter.
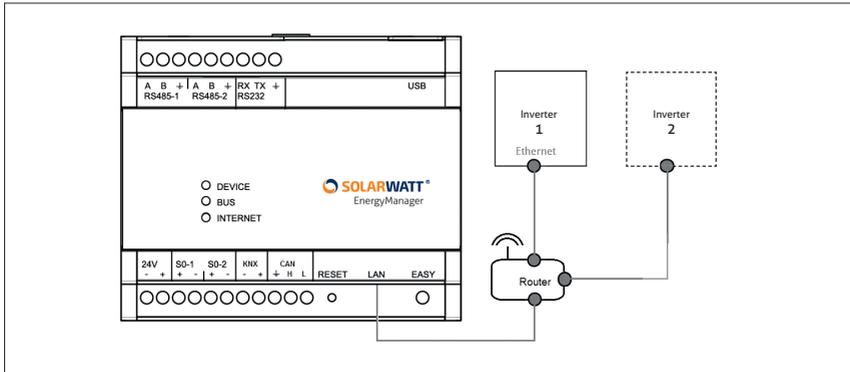
⚠ *TIP*

You require the IP address of the inverter. This can be found with network scanning programs such as Network Scanner (Windows), Fing (Android), Connection Assist (SMA) or Datalogger Finder (Fronius).

ATTENTION! A network scan requires the prior consent of your customer!

Use these programs to search for the MAC address that is found on the device label!

Open your web browser and enter the IP address of the inverter into the address bar of the browser and click **Enter**.

Select your preferred language from the drop-down list and select the
Installer user group.

Enter your password and confirm your **Login**.
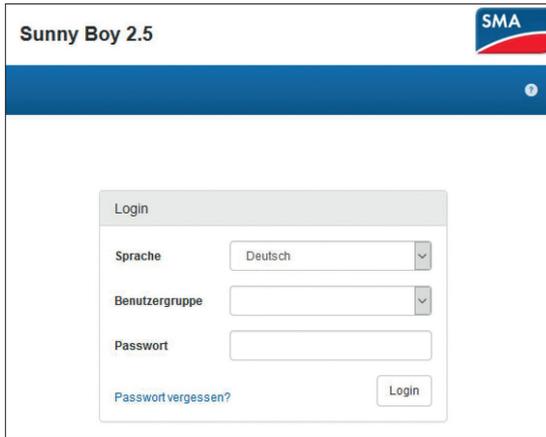
Then chose **Starting the installation assistant** in the user menu.

First, configure the **Type of communication** in the **Network configuration** tab in line with your requirements.

In the example shown, the connection via Ethernet without automatic configuration was selected. In this case, all IP addresses and the subnet mask must be manually entered.

Click **Save and continue**.

Continue with the configuration in the **Time and date** and **Country standard** tabs.

Configure the infeed management in the **Grid management service** tab.

If the inverter should be dynamically regulated by the EnergyManager, select **Active power limiting P with system control**.

Confirm each with **Save and continue**.

Check the **Summary** tab to ensure all settings are correct and click **Continue**.

Then switch to the **Device parameters** menu.

Under **External communication>Modbus>TCP server** switch the TCP server **on**. Only then is it ensured that the EnergyManager can communicate with the inverter.

Under **External communication>Modbus>UDP server** switch the UDP server **on**. Only then is it ensured that the EnergyManager can communicate with the inverter.

> ⚠️ **TIP**
>
> *If the connected inverter cannot be found:*
>
> - *Check whether the devices are in the same network and can be reached.*
> - *Check the correct cabling again.*
> - *Check that you have carried out the configuration correctly.*

Integrate the inverter into the customer's energy management by adding it to the device overview in the Smart Setup of the EnergyManager under Search devices (seeChapter 9.1).

13.3 Integration of a SolarEdge inverter via RS485 interface

⚠ *IMPORTANT*

The CPU version (Firmware) of the inverter must be at least 3.xxxx. Otherwise, a Firmware update is required.
Follow the SolarEdge installation instructions for the configuration of the inverter.

1. Open the **Configuration menu** in the inverter display.

2. Select the **Communication** menu item.

3. Select **RS485 communication** and set RS485-1 to **no SE Logger**.

4. Select **SunSpec** log.

5. The **Device ID** must be 1 for the first (only) inverter.

6. Set the **Baud rate** to 115200.

7. Then use the **SmartSetup** to configure the inverter in the system and assign the corresponding PV system to it.

13.4 Installation road map

	Installation step	Aids	Required data / information
Preparation and planning	Installation requirements and planning	Preparation and planning checklist	Planned topology of the energy system (meter, PV-System, consumers, battery storage)
	once: Registration as an Installer	**InstallerCenter** http://installer.energy-manager.de	own company data for registration
	Customer-Invitation for registration in in the EnergyManager Portal		Serial number and password of the EnergyManager
Device installation	Installation of the EnergyManagers	Customer's home	
	Connection to the inverter		via RS485? via Ethernet? via S0-Interface?
	Connection to MyReserve		CAN-Cable (min Cat5.e with wires twisted in pairs), MyReserve Installation- and operating Manual
	Connection to the internet		if applicable: Switch
EnergyManagers configuration	Access to the EnergyManager	**Smart Setup Interface** Operating System OS X (Apple) or Linux: http://energymanager.local/ Operating system Windows: http://energymanager/ alternative: IP-address of the EnergyManager	Access to the customer's network, Serial number and password of the EnergyManager
	Portal Smart Setup: Search devices		Topology of the energy system (meter, PV-System, consumers, battery storage)
	Portal Smart Setup: Customer		Customer's address, electricity price, topology of the energy system
	Portal Smart Setup: PV-Plants		Direction, inclination, performance of the PV-plant, assigning of inverters, dynamic feed in limit
	Portal Smart Setup: Houshold consumption		Topology of the energy system (meter, PV-System, consumers, battery storage)

13.5 MyReserve, AC Sensor 63 and EnergyManager circuit diagram
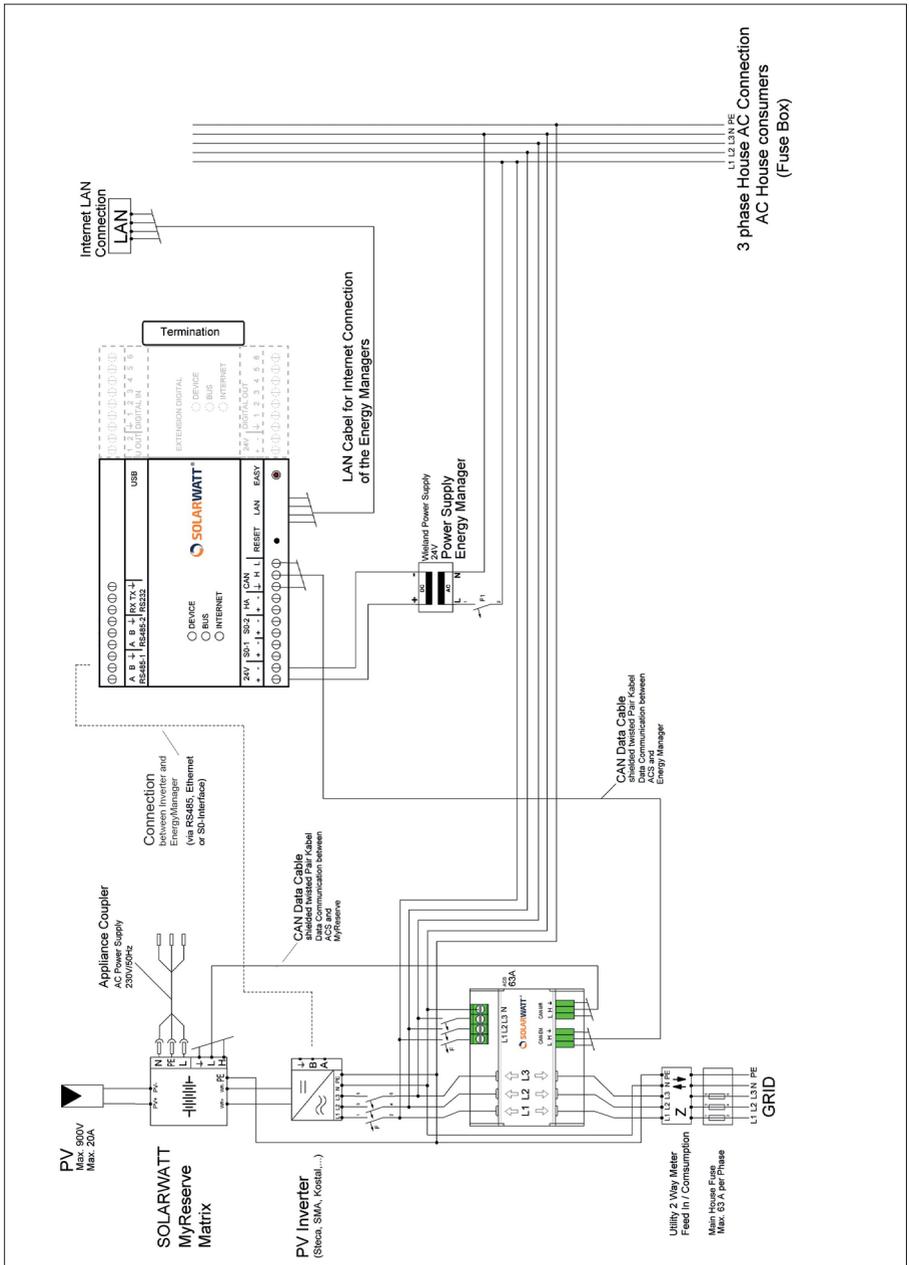
13.6 Error screens in device search

Error	Possible cause	Remedy
Device (consumer or producer) cannot be found in the device search	Incorrect wiring	Check the wiring
	Device not switched on	Switch on the device
	Incorrect RS485 connection	The EnergyManager has multiple RS485 connections with which it is possible to freely select the driver assignment. Check whether the device is connected to the connection you selected under **Search devices** or perform a device search again.
	Address conflict	Each inverter must have a unique RS485 address. This can be set up in the configuration menu of the inverter.
		Perform a device search again.
		Check the software version of your external device and the software version of the EnergyManager, then contact your support contact.
Device connected via Ethernet cannot be found in the device search	No network	Check the function of the router
Connected inverter cannot be found in the device search	Incorrect choice of cables	Use shielded cable for the connection between EnergyManager and the inverter.
	Cable too long	If the cable is too long, it may help to install a 120 Ohm terminating resistor between connection terminals A and B of the EnergyManager.
Device integrated via S0 meter is displayed in red in the device list	Meter has not received 2 necessary pulses	Wait, switch on device to be measured
	The meter does not receive any pulses	If the energy meter does not receive a pulse, please check to ensure correct connection of the plus and minus cables.

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