

Luqas, the smart energy management module (LQS06SA)



1 LQS06SA

1. Product description

Luqas, the smart energy management module (LQS06SA), allows you to actively control up to 70% of your major electricity consumers in a household to minimise your final bill. With this module, you can easily control a heat pump or boiler in combination with an inverter, a home battery and one or two single charging stations, based on information from the digital meter or kWh meter, the calculated capacity tariff, and weather and consumption forecasts. It will also make the greatest possible use of generated electricity by buffering energy. Various uses are possible. Besides the ability to control capacities using a variable approach, it can also be used to turn devices on and off. The module can operate either on its own (Stand-Alone) or with a Qbus controller. Everything is presented clearly and controllably in a visual manner in the Qbus Control application and Cloud. The module has 6 features that are explained below: P1 reading, P1 splitting, relay control, charging station control, pulse measurements, and Cloud visualisation and operation. These features will be discussed briefly below.

The module is powered with 230Vac and linked to the digital meter using the P1 gate and the network. All data provided by the digital meter are processed internally by the module for controlling the electricity. You can use these data in binary or analogue logic functions for advanced control operations using a Qbus CTD controller. As an alternative to the digital meter with P1 port, the module can also control based on a Modbus kWh meter. You can find the table with compatible meters in Annex 5 of this document.

Depending on the type of connection (mono or three-phase), the presence of a digital gas meter and/or digital water meter, you may have up to 25 parameters: meter readings, current power capacities, voltages, flows, gas usage, water usage, ... The reading of data using the P1 gate of the digital meter can be combined using the pulse inputs for 1 or 2 additional kWh meters. This allows you to feed the data of your electricity generation and/or main consumer(s) separately.

The direct network connection enables you to configure this module when it's set up as Stand-Alone via

<https://lucaswizard.qbuscontrol.com/>. The bus connection allows this module to be expanded or linked to a Qbus Full system.

The module offers autonomous and active electricity control using, among others, two potential-free relay contacts. These contacts can be used to control the Smart Grid inputs of heat pumps or to directly control power capacities up to 16A per contact. A list of compatible heat pumps with Smart Grid control can be found in Annex 1. A list of compatible heat pump boilers with a PV contact can be found in annex 2.

The LQS06SA can communicate with the charging station using a network connection on the same network as this charging station using the MODBUS TCP/IP protocol. This allows the module to control the power capacity in a variable manner based on the configured capacity, usage and fuse. A list of compatible charging stations can be found in Annex 3.

The LQS06SA can communicate with an inverter and home battery via a network connection. The module not only reads parameters such as generated energy or battery status but also actively controls the inverter. On one hand, the module can temporarily reduce the generated power when there is injection and there are negative dynamic rates ("Curtailment"). On the other hand, the battery can be actively charged when dynamic rates are very low, storing energy to be discharged later in the day when rates are higher. A list of compatible inverters can be found in Annex 4.

This module has a smart P1 gate switch to divide the P1 data among three P1 OUT gates. In a later phase, the data of the P1 gate can be intelligently transmitted to the three P1 out gates. This allows the smart control of devices using P1 data.

By default, 6 months of free use of the App or Cloud is offered from the moment of commissioning to make users aware of their energy usage. This is possible thanks to the option of sending warnings (push reports on a mobile phone or by email or text message) to the user if the selected threshold values for usage, generation, or predicted quarterly peak usages are exceeded. Users can read the status of their controlled users, adjust users, and check the current and historic energy usage in an intuitive manner in the Qbus Control App.

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These features can be retained by renewing the subscription annually or through a non-recurring activation for an indefinite period. The subscription can be renewed through the App or Cloud.



Figure 2 Qbus Control application

Stand-Alone function:

After connecting the power and establishing the network connection, the Stand-Alone configuration can be completed using the user-friendly 'luqaswizard' configuration app: <https://luqaswizard.qbuscontrol.com>. The luqaswizard will guide you through all the settings in a simple manner. You can configure which devices are connected and their power capacity. The user can subsequently visualise and operate his energy control using the Qbus Control app or Cloud. If the Qbus Control is no longer active, the module will continue to work autonomously based on the configured values. The user will be requested to renew his account well in advance.

Combination with CTD

If the module is connected to a Qbus controller (CTD), it can be configured using System Manager III and the data can also be used in logic functions. By connecting the LQS06SA to a CTD, you have access to all functionalities available within a Qbus system.

The LQS06SA has a unique serial number and activation code that must be entered in the System Manager III configuration software or the configuration wizard during the configuration process. All programmed data will be stored internally in a permanent memory.

2. Safety rules



Please read the entire manual before installing and activating the module.

NOTE

- The module must be installed, started, and maintained by a qualified electrician in accordance with the applicable national legal regulations.
- This module is only suitable for DIN rail installation EN50022. The module must be installed in a fireproof, closed distribution cabinet with ventilation grilles.
- The power must be switched off before working on the LQS06SA.
- Never connect external voltages (e.g. 230Vac) to the SER485 bus, the Qbus bus, or the pulse inputs! This will cause irreparable damage to the module or connected devices.
- The module may not be opened. The warranty will expire once the module is opened!
- PLEASE NOTE! Not all systems can be controlled. Always consult the technical brochure of the device to be connected.

3. Installation and cables

NOTE: DISCONNECT THE POWER SUPPLY TO THE MODULE BEFORE CARRYING OUT WORK ON THE MODULE

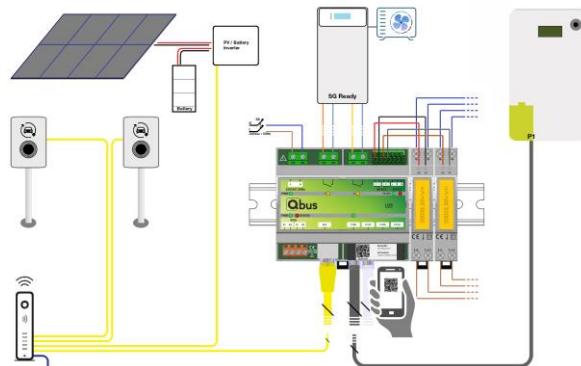


Figure 3a Connection diagram example with digital meter (P1 connection)

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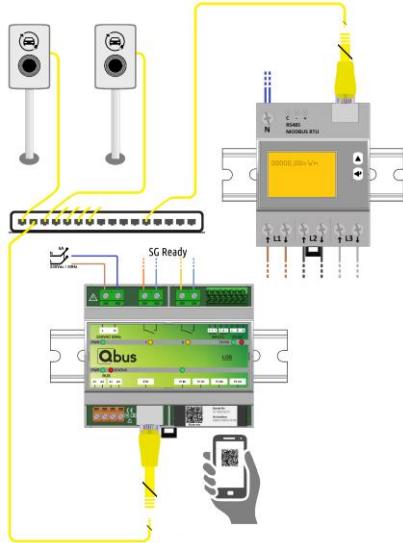


Figure 4b Connection diagram example with Modbus kWh meter

Installation:

Click the module onto a DIN rail DIN EN50022.

Power supply:

A two-pole automatic fuse with a maximum of 16A must be connected to the 230Vac power supply module. However, protection from 2A is sufficient. Conductor cross-section: minimum 1.5 mm² at 16A. Remove approximately 7 mm of insulation from the conductor and screw it into connector L-N.

Load/Relay:

The LQS06SA has 2 potential-free available contacts that can each control 16A. The contacts can be used to control Smart Grid Ready inputs on heat pumps or as individual switch contacts to control devices (such as a PV contact). You can determine the role of each relay contact using the configuration process. Conductor cross-section: minimum 1.5 mm² at 16A. Remove approximately 7 mm of insulation from the conductor and screw the conductors into the connectors.

Please note: If the two relays are combined into a Smart Grid, relay 1 = SG0 and relay 2 = SG1.

Pulse inputs & RS485:

Remove approximately 7 mm of insulation from the cable and push the cable into plug-in clamps +1 -1; +2 -2. Both fixed and flexible wires between 0.5mm² – 1.5mm² can be used. For flexible wires, use a screwdriver to push the compression spring of the plug-in clamp down when inserting the wire.

The wires can be released by pushing the top of the compression spring of the plug-in clamp downwards with a screwdriver while pulling out the wire without exerting excessive force.

Ethernet:

Connect the network cable used to connect to the Internet using the network connection and the charging station if it communicates with the energy management module using a TCP/IP protocol.

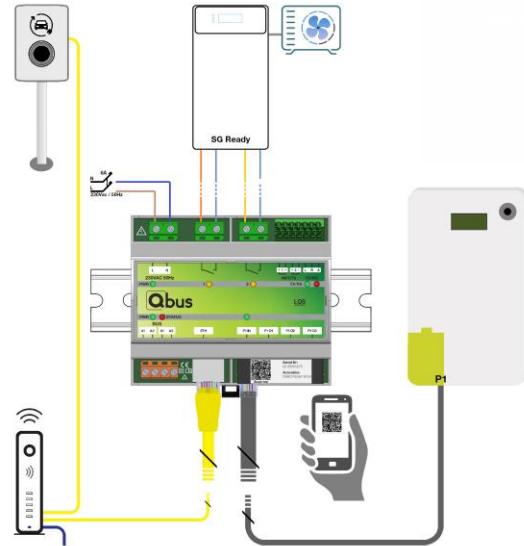


Figure 5 Connection diagram example LQS06SA with charging station and Smart Grid control

P1 gates:

Connect the provided RJ12 cable (cross-over, 5m) to the P1 IN and the P1 gate of the digital meter. The maximum length of the cross-over RJ12 cable is 20 metres. The other P1 gates (P1 01, P1 02, and P1 03) transmit the original P1 data directly.



Figure 6 Sheets cross-over RJ12 cable

Activation of P1 gate:

The activation of the P1 gate can take place well before the installation of the energy management module. This is usually requested through the user account on the website of the distribution grid administrator. A list of the available grid administrators in your region can be found below:

Brussels:

Sibelga

Netherlands:

Coteq Netbeheer

Enduris

Enexis

Liander

RENDÖ Netwerken

Stedin

Westland Infra.

Flanders:

Fluvius

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Wallonia:	ORES RESA REW AIEG AIESH
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Qbus bus cabling:

Any shielded cable with conductors of at least $2 \times 1 \text{ mm}^2$ can be used as a bus cable. A green shielded EIB cable should be used if conductors are combined in pairs to achieve a cross-section of at least $2 \times 1 \text{ mm}^2$. The shielding of the bus cable must – and may only – be connected to the building's general earthing system at one end.

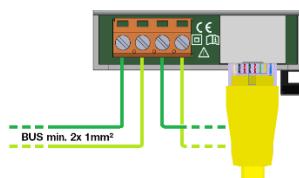


Figure 7 Bus connection LQS06SA

LED indicator on the module:

Green:

- PWR 230VAC** (top) = power supply OK
- PWR Bus** (only when using the bus system with CTD) = power supply OK
- P1 IN:** This means that the P1 has been activated correctly
- RS485 TX:** Communication RS485 leaves the module

Red:

- Status LED:**
 - On, when combined with a CTD, during the programming using System Manager III.
 - Blinks 3 times during start-up
 - Blinks 1 x short (500msec.), followed by long off (3sec.): no configuration or wrong configuration
 - Blinks 2 x short (500msec.), followed by long off (3sec.): no ethernet, bad ethernet cable or no ethernet cable.
 - Blinks 3 x short (500msec.), followed by long off (3sec.): no internet connection, wrong router settings.
 - Blinks 4 x short (500msec.), followed by long off (3sec.): no Qbus cloud connection, wrong router settings.
- RS485 RX:** Communication RS485 responds

Orange:

- Relay outputs 1 & 2: Output active

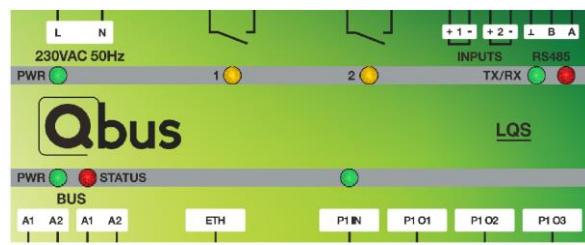


Figure 8 LQS06SA Front detail LEDs

4. Stand-Alone configuration

Stand-Alone installation:

Scan the QR code on the module to start with the configuration process. As an alternative to the smartphone or QR code, you can also visit luqaswizard.qbuscontrol.com in the web browser of your device to open the configuration app. Once the serial number and the activation code have been entered, the module can be configured completely based on the available power supply, the read inputs, and the controlled outputs. The email address of the user will be requested at the end of the configuration process. By providing an email address, the user will receive an email with an invitation to log in or register at <http://qbuscontrol.com>. Make sure to check if the email ended up in your spam email folder. Once the user has logged in, he can immediately check and use the configured energy dashboard.



Figure 9 Configuration wizard

5. Configuration using System Manager III

When using the module with a CTD, you can use all features offered in a Stand-Alone configuration, but also combine these with the benefits of a complete Qbus system.

Start the System Manager III configuration software and add a new energy module. Configure the entire module based on the power supply, the read inputs, and the controlled outputs.

If the module has already been configured as Stand-Alone, you can consult the settings using the download button.

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Figure 10 Download the LQS06SA configuration through System Manager
III

1. Configuration kWh meter

If the digital meter is difficult to access or not present, a Modbus kWh meter can be installed on the main power cable of the installation. In the wizard, you can choose a kWh meter instead of a digital meter. Annex 5 lists the compatible kWh meters. For TCP/IP, you must enter the IP address of the meter. For meters connected via RTU, you must enter the slave address.

6. Configuration of Smart Grid-ready heat pumps

Heat pumps can be controlled in a more energy-efficient manner using Smart Grid contacts. These contacts can ensure that energy is thermally buffered (in warm water used for sanitation facilities or in space heating) or distribute the energy usage in the household by temporarily deactivating the heat pump. By making more efficient use of an air/water heat pump during the day, it can operate 20% more efficiently on average and reduce its energy usage – increasing your auto-consumption at the same time.

The two relay contacts are switched based on the type of heat pump, the energy currently generated or used, and the configuration of the energy switch of the end customer (distribution of energy usage). Not all regimes are available for each type or brand of heat pump.

Switched regime	Turns the heat pump...
'Off'	up to 2 hours. After this, the normal state will be activated for at least 1 hour.
'Normal'	not. Normal control operations of the heat pump are used.
'Comfort'	to a higher comfort temperature to enable the buffering of energy in warm water of sanitation facilities, space heating, or buffer vessels. The heat pump switches to this state when the current injection exceeds the value entered in the comfort configuration – normal state.
'Boost'	to a maximum temperature to enable the greatest possible buffering of energy in warm water of sanitation facilities or buffer vessels. The heat pump switches to this state when the current injection exceeds the value entered in the boost configuration – comfort state.

The power capacities of each regime must be entered in the configuration wizard.

When switching modes, for example from 'OFF' to 'Normal', 'Normal' to 'Comfort', or 'Comfort' to 'Boost', the module will remain in 'Normal' and 'Boost' modes for 5 minutes and in 'Comfort' mode for 10 minutes. When switching down, each mode remains active for at least 1 minute.

If there is no home battery, the system will switch back from boost to comfort or from comfort to normal as soon as the net consumption exceeds 50% of the power entered in the respective step. If there is a battery, the switchback will occur as soon as there is a net energy withdrawal from the grid.

7. Configuration of charging stations

! Charging stations with "Phoenix contact" controller do have reserved TCP/IP addresses. Please avoid using the following range when assigning an IP address to the charging station.

- 192.168.4.x
- 192.168.5.x

In case you do have an IP-conflict, change the IP address and reboot the charging station.

Mennekes Amtron Professional

By default, the Mennekes Amtron Professional can be reached over the network at the following IP address: **192.168.124.123**.

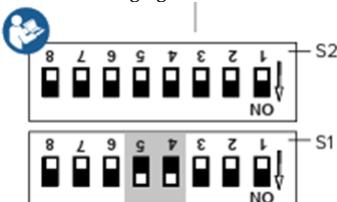
The charging station must be configured in the following manner to allow it to be controlled by the energy management module:

- Visit the web interface of the charging station using your browser at the IP address mentioned above
- Log in with the following username: 'operator' and the password given in the commissioning document of the charging station.
- Visit 'Load management'
- Switch 'Modbus TCP server for energy management systems' ON.
- No other settings need to be changed for the correct operation of the energy management module. If desired, settings like the maximum power per phase, authorisation, or network can be configured in the web interface of the charging station.

Mennekes Amtron Compact 2.0s and Amtron 4You 310

The Mennekes Amtron Compact and 4You 310 charge points need to be connected to Luqas via Modbus RS485.

Set dip switches 4 and 5 of S1 in the charging station as shown in the figure below to allow the charging station to be controlled by Luqas.

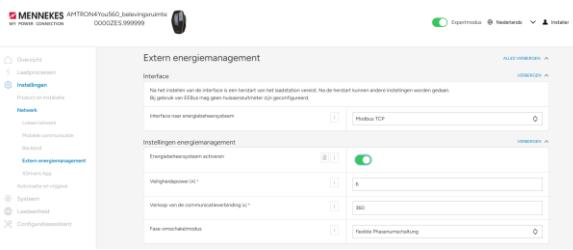


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Mennekes Amtron 4You 510/560 / 4Business

To have the charging station controlled by the energy management module, configure it as follows:

- When the charging station is powered up, push the top and third buttons simultaneously until the front panel lights up green for several seconds.
- Once this is done, the Wifi network of the charging station can be found on PC or GSM
- Connect via Wifi to the charging station. The SSID and code can be found on the sticker sheet supplied with the charging station.
- Surf to 192.168.170.10
- Login with the installer login supplied with the charging station.
- Logging in can also be done via the 4Installers App.
- In the menu, go to "Settings" - "Network" - "External power management" and activate "Power management system".

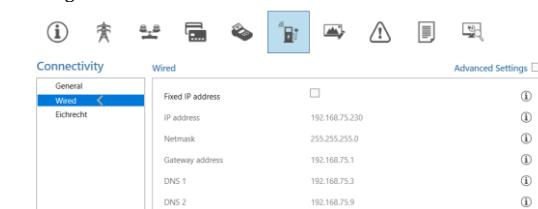


- Set the "Safety Power" parameter to 6 amps.
- Set a static IP address is possible via the menu "Settings" - "Network" - "Local network"
- Save and restart the charging station via the interface

Alfen

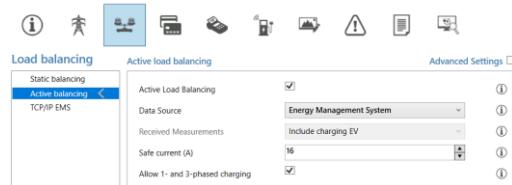
The charging station must be configured in the following manner to allow it to be controlled by the energy management module:

- Install the ACE service installer (alfen.com)
- Enter the username ('Post') and password ('prEze8')
- The application will open and ask for the 'user level' and password. Select 'owner' and the password found on the inside of the cover of the charging station.
- The charging station will be detected automatically, and the IP address will be displayed on the left side. This IP address must be entered in SMIII or the configuration wizard. It is recommended to set a fixed IP address, outside the DHCP range. This can be set in the 'wired' tab.



- Select the 'Smart Charging' tab

- Select the field 'Active Load Balancing'



- Enter 'Energy Management System' as 'Data Source'
- The 'Safe Current' is the power permitted if the charging station loses its network connection. Alfen recommends setting this to at least 6A.
- The additional TCP/IP EMS tab gives you the option of configuring whether 1 charging station is controlled individually ('Socket') or several charging stations using 1 master station ('SCN') are controlled.



- Save the settings and restart the charging station so that it can adopt its settings. To do this, click on the indicated symbol:



Veton

The Veton charging station can be reached over the network at the 'ev3000.local' IP address. No other settings are required on the charging station itself.

Blitzpower

The Blitzpower charging station can be accessed on the network via the IP address ev3000.local. No further configuration needs to be done on the charging station itself.

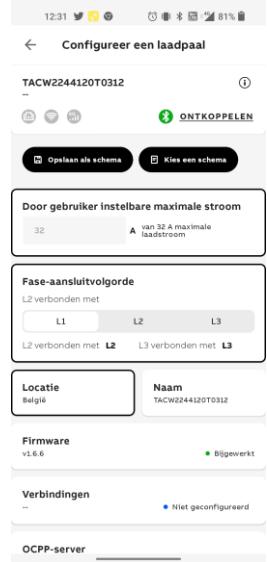
ABB

Follow the steps below to configure an ABB charging station. The charging station must be connected to the local network via the primary Ethernet port (for devices with a MID display) or with the Modbus RS485 connection (for devices without a MID display).

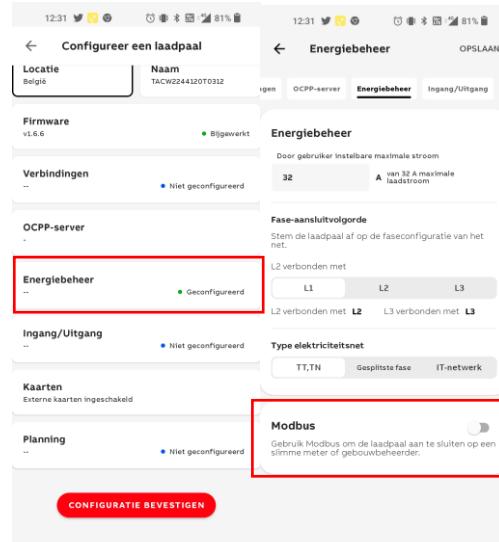
- Download the 'Terra Config 2.0' app from Google Play Store or Apple store.
- Log in to the app and connect to the charging station via Bluetooth or Wi-Fi (the smartphone must be connected to the same Wi-Fi network as the charging station).
- Then enter the PIN code that came with the charging station. You should now be connected to the charging station and be able to change settings.

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- Go to the configuration page of the connected charging station and check that the firmware version is at least v1.6.6 (1). You can update it via the app.



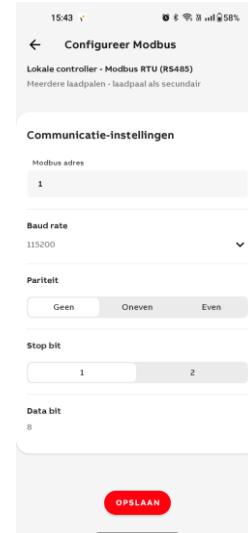
- At the bottom, click on 'Energy management' to configure the controller (2). Set the installation parameters and select 'Modbus' (3).



- Select "Local controller" and choose Modbus RTU or Modbus TCP/IP based on the selected connection.

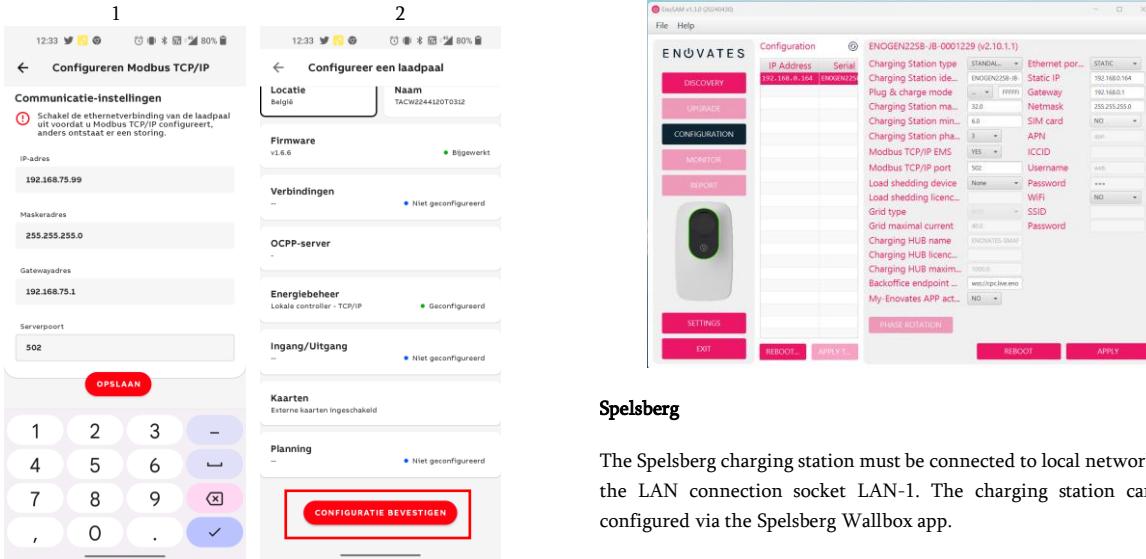


- If you choose Modbus RTU, on the following page, you need to adjust the settings as follows: baud rate 115200, no parity, stop bit 1. If two ABB charging points are connected via Modbus RTU, use Modbus address '1' for the first charging point and Modbus address '2' for the second charging point.



- If choosing Modbus TCP/IP, on the next page, enter a fixed IP address for the charging station (1). Make sure that 'LAN' is deactivated. Choose an available IP address within the local network, fill in 'Mask address' (255.255.255.0), fill in the 'Gateway address' according to the specified IP address (same first 3 digits, last digit '1'), and enter 'Server Port' 502. Click 'Save' and then 'Confirm configuration' (2).

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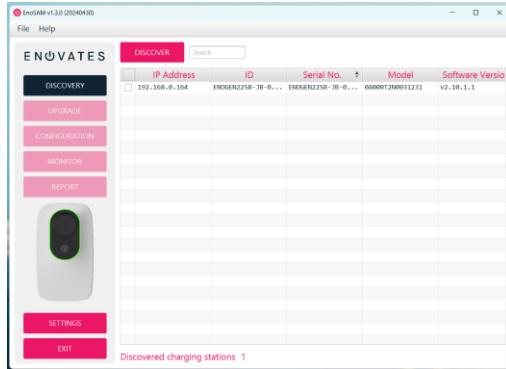


- Restart (power restart) the charging station. The charging station is now correctly configured.
- Use the filled-in IP address in the configuration wizard of the Luqas module if Modbus TCP/IP was chosen.

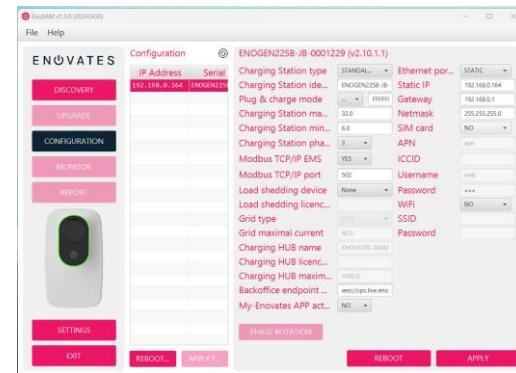
Enovates

Follow the steps below to configure the Enovates charging station. The charging station must be connected to the local network via the primary Ethernet port.

- Open the Enosam Configuration Tool from Enovates on a PC connected to the same network as the charging station.
- Click on "Discover" to find the charging station.



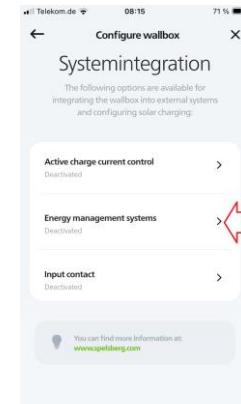
- Select the charging station and click on 'Configuration'.
- Under 'Modbus TCP/IP EMS' select 'YES', check that the Modbus TCP/IP port is '502' and set a static IP address. This address must then be entered in the Luqas' configuration wizard.
- Click 'Apply' and restart the charging station via the 'Reboot' button.



Spelsberg

The Spelsberg charging station must be connected to local network via the LAN connection socket LAN-1. The charging station can be configured via the Spelsberg Wallbox app.

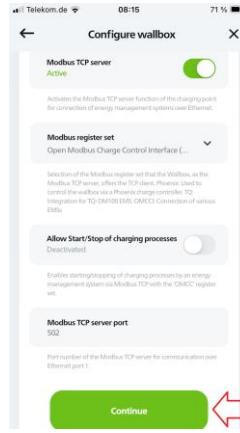
- Open the App and on initial installation, select 'I am an electrician' and activate service mode. Then select 'Configure Wallbox'
- Scan the QR code on the inside of the quick start guide and follow the instructions in the app for further configuration.
- Go to 'Advanced Settings'.
- Go to 'Network' and activate expert settings.
- Set a fixed IP address after activating 'Static IP address' and confirm.
- Return to the configuration menu after configuring IP address and click 'Next'.
- Configure 'System integration' and go to 'Energy management systems'



- Click Modbus TCP and activate the Modbus TCP server, select Modbus register set 'Open Charge Control Interface' and set Modbus TCP server port 502.

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e-RS



- Finally, set a safe charging current in case of connection failure: e.g. 6-8A

- Navigate to the charging station's IP address.

- Log in with ID 'operator' and password 'Operator'.

- Go to 'load management'.

- Set the 'Modbus TCP server for energy management systems' setting to 'on'.

- Set the 'Modbus TCP Server register address group' parameter to 'Open modbus charge control interface' (OMCCI).

- Set the parameter 'Modbus TCP Server register address group' to Open modbus charge control interface' (OMCCI).

- Click on save

- Restart the charging station

Peblar

- Connect via Wi-Fi (SSID of the Peblar hotspot). The SSID and default password are listed on the flyer/label of the charging station.



- Log in to the browser and go to "Settings".
- Go to "Network" and expand "Ethernet" to change the IP mode to "Manual".
- Select an IP address outside the DHCP range. This address is required in the Luqas configuration wizard.
- Go to System – Firmware and check for updates.

Systeem



emosS

By default, the emosS charging station can be reached via 192.168.5.1. Surf to this address and configure the Phoenix Contact controller. This can be done by importing a configuration file or manually:

- Login with ID: 'Operator', password 'Operator'
- Select the charge point under 'Charging Park', 'Charging Stations' and create a configuration.
- Under 'Energy Meter Type', select the type 'Phoenix Contact EEM-EM357'.
- Under 'Load management', do not set a measuring device and do not select a charging station.
- Under 'System Control', 'Network', configure a static IP address.
- Restart the load point at the end of the configuration.

Snigg

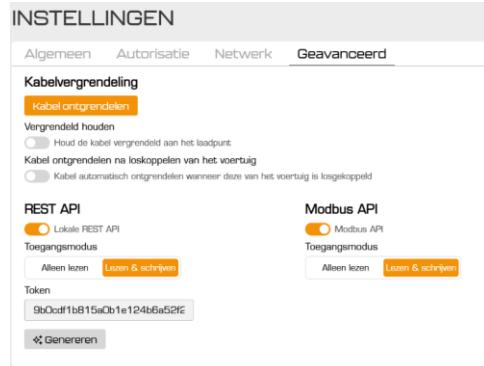
Snigg charge points can be reached at the IP address 192.168.123.123 by default.

Follow the following steps to configure the charge point:

- Surf to the IP address of the charge point and log in with the manufacturer's details
- Go to "Load management"
- Set the 'Modbus TCP Server register address group parameter to 'Open Modbus Charge Control Interface (OMCCI)'
- Click save and restart the charging station

- Then go to 'Advanced' and check that 'Modbus API' is enabled and the 'access mode' is set to 'Read & Write'.

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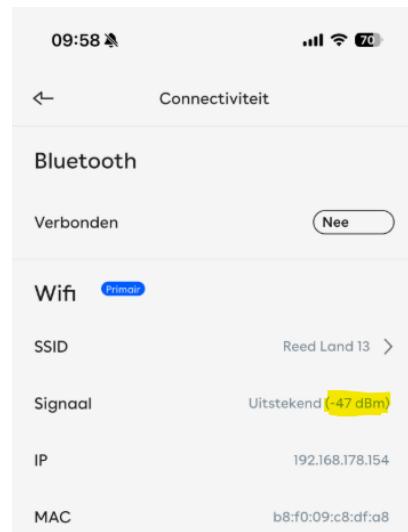
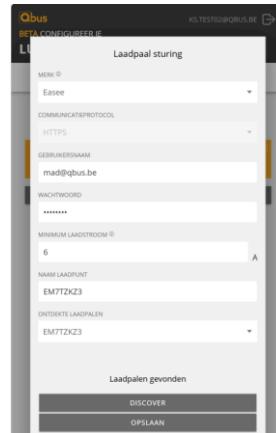
- Click on 'Discover'.
- The charging station will now be found.
- Click on 'Save'. The charging station is now available in Qbus Control.
- This charging station works via Wi-Fi or 4G, a stable Wi-Fi or 4G signal is required for correct operation. If in doubt, open the Easee Installer App or the Easee user app and check that the signal strength is better than -60 dBm. (-30 to -50 dBm = Excellent; -50 to -60 = Good)

Easee

- This charging station communicates via REST API.
- Download the Easee Installer App



- Log in or create an account.
- After logging in, click on the round Bluetooth icon to connect to your phone.
- Connect the charging station to your Wi-Fi or mobile network
- Once the charging station is connected to the network, go to the Luqas configuration wizard.
- Enter the details you used to log in to the Easee app: username, password and minimum charging current.



8. Inverter Configuration.

Huawei

Before starting the configuration, make sure that the latest firmware is installed (see also Annex 4 for more information). A WiFi dongle (type SDongleA-05) is always required.

For a more detailed instruction, please go to:
<https://support.huawei.com/enterprise/en/doc/EDOC1100387520?section=k004>

- Install the Huawei Fusion app (via Huawei App Gallery) and log in with your Fusion account
- Connect to the device via "Device", "Device commissioning", scan the QR code and connect to the device's WLAN.
- Log in as "installer" and enter the password. (default: 00000a)

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- Update the inverter via “Maintenance” and “Upgrade”. Check for upgrades several times.
- Go to “Settings”, “Communication configuration”, “Parameter settings”, “Modbus TCP”, click on “Connect” and enable it.
- Go to “Settings”, “Communication configuration” and “Settings with inverter connected router”. Here you can disable DHCP for the WLAN connection and set a fixed IP address. This IP address is required in the Luqas configuration wizard.
- Restart the inverter.

SMA

! The SMA energy meter or SMA Sunny Home Manager is required for intelligent control. Verify that these are present.

! Communication between Luqas and the SMA inverter takes place via Modbus TCP. Modbus TCP is NOT enabled by default on SMA Tripower Smart Energy inverters.

Here are the steps to activate Modbus TCP:

- Stand next to the inverter and search for Wi-Fi networks with your smart device.
- Select the SSID of the SMA product from the list of networks found and connect using the password provided on the label.
- Alternatively, you can also connect via the Ethernet cable. Ensure that your PC is on the same network as the inverter's IP (IP visible on the label).
- Open the web browser on your smart device and enter ‘<https://smalogin.net>’ in the address bar.
- Log in with the ‘installer’ user rights.
- Go to ‘device parameters’ -> ‘external communication’ -> ‘Modbus’ -> ‘TCP Server’.
- Set ‘Activated/Enabled’ to ‘Yes’.
- Check that the port is set to ‘502’.



The screenshot shows the 'Modbus' and 'TCP server' sections of the SMA inverter's configuration. The 'Activated' field in the 'TCP server' section is highlighted with a red box.

Here are the steps to activate Modbus TCP:

- Change the IP settings to a static IP for connection to the local network.
- Click on “Save all”.

As a final step, check that the inverter's firmware is up to date.

Solax

For the WiFi or LAN connection, use the Pocket WiFi+LAN dongle (product 1040060001):

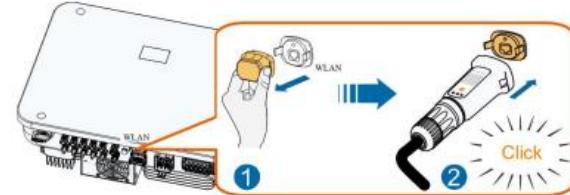
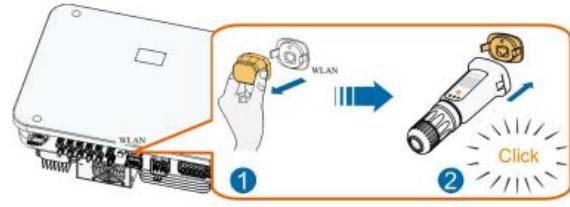
- Connect to the inverter's WiFi network and navigate to 192.168.10.10.
- Log in with user ID *admin* and the password indicated on the QR code of the dongle.
- Go to the static tab and complete the SSID information. Set the IP address to a fixed address.

Use the fixed IP address in the configuration wizard of the Luqas.

Sungrow

!! The Sungrow smart energy meter is required for intelligent control. Verify that it is present.

! The inverter is supplied with a communication module called ‘WiNet-S2’ for direct Ethernet communication or Wi-Fi communication.



Connect via Wi-Fi (to do this, press and hold the red button on the Wi-Fi dongle for a few seconds to activate the Wi-Fi connection) or via LAN (IP address on the sticker on the inverter. Default IP: <http://11.11.11.1> or <http://102.10.100.254>).

- Navigate to the local web server and ensure you have access as an installer/administrator.
- Go to “Settings” -> “Communication parameters” -> select Modbus/Modbus-TCP as the protocol.
- Select port: 502
- Go to IP settings and set a static IP, gateway and subnet for connection to the local network.
- Confirm the settings.
- Check that the firmware is up to date.

9. Control of multiple charging stations

The module can simultaneously control two charging stations (either the same or different brands). The available power will be distributed as evenly as possible among the connected vehicles according to the logic provided below:

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- If one vehicle is connected and able to start charging, it will draw the power allowed by the energy slider. Parameters in the vehicle or a power limitation in the charging station may still result in a lower drawn power than what is made available.
- When a second vehicle is connected, Luqas will check if there is a minimum power available for the second vehicle. If there is enough power available to provide both vehicles with a minimum power level, the power to the first vehicle will be reduced.
- Throughout the further charging process, the available power will be distributed as evenly as possible between both vehicles. However, the delivered power is dependent on the number of phases a vehicle will use for charging: a three-phase vehicle will receive three times the power of a single-phase connected vehicle. If there is surplus energy, it will be allocated to the charging station with the lowest charging current. If there is insufficient energy, it will be drawn from the charging station with the highest charging current.

Attention:ds

When a vehicle is connected, its charging capability is assessed to determine if it can charge on single-phase, two-phase, or three-phase power. This determines the minimum power required for the vehicle to start charging. The minimum power is determined by the vehicle's minimum starting current plus a buffer of 2 amperes per phase. The available power is the difference between the set value of the energy slider and the current household energy consumption or the surplus energy from the solar panels.

The table below provides the minimum power requirements for various scenarios:

Minimum Starting Current	Single-Phase Charging	Two-Phase Charging	Three-Phase Charging
6A + 2A buffer	1,84kW	3,7kW	5,52kW
8A + 2A buffer	2,3kW	4,6kW	6,9kW

10. Technical specifications

General specifications:

- Power supply: 230Vac +/-10%, 50Hz - maximum protection C16A/2P
- Breakdown voltage: tested at 3kVac
- Typical usage: max. 39mA (all relay outputs on)
- Ambient temperature:
- Operating temperature: 10°C to 50°C
- Storage temp. range: -10°C to 60°C
- Maximum humidity: 93%, no condensation
- Bus load: 5mA at nominal voltage 13.8V.
- Maximum installation height: 2,000 metres above sea level.

Outputs:

Relays 1 and 2 => potential-free contacts for maximum current: 16A:

- Contact resistance: 100mW
- Set/Reset time: 15ms max / 5ms max
- Life span: 20mil. Operations

- Maximum current: Resistive load ($\cos \phi = 1$) 16A at 230Vac / 30VDC
Inductive load ($\cos \phi = 0.4$; $L/R = 7 \text{ ms}$) 8A at 230Vac / 30VDC
- Maximum switch voltage: Resistive load ($\cos \phi = 1$) 3680VA at 230Vac, 480W at 30Vdc; Inductive load ($\cos \phi = 0.4$; $L/R = 7 \text{ ms}$) 1840VA at 230Vac, 240W at 30Vdc
- We strongly recommend not exceeding these values. An external contact must be used if this is the case.

Electrical safety

- Bus: 13.8Vdc -18Vdc very low safety voltage.
- In accordance with EN50491-5-1, EN50491-5-2, EN60529
- Breakdown voltage: module is tested and approved at 3kVac. (50 Hz, 1 min)
- Non-toxic, in accordance with WEEE/RoHS

CE

- Qbus declares that this product meets all applicable European directives and regulations.
- The EU declaration of conformity is available upon request.

Physical specifications:

- Housing: plastic, self-extinguishing in accordance with UL94-VO
- Ingress protection rating: IP20, EN 60529
- Installation: rapid installation on DIN rail, width 6 modules
- Dimensions (h x w x l): 62mm x 90mm x 107mm
- Weight: approximately 150g.

11. Dimension diagram

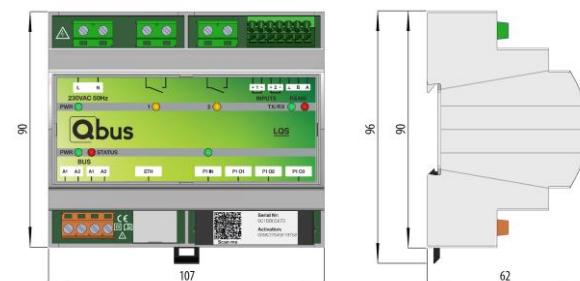


Figure 11 Dimensions LQS06SA

12. Explanation of symbols



Equipment which protection against the risk of electrical contact is based not only on basic insulation but also on additional protection such as double insulation or reinforced insulation. There is no option to earth the equipment.

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The operating instructions of the product in question must be read before the device is connected. ISO7000-0434



Mains connection (230V) to the power connector. IEC 60417-5036



CE conformity. All declarations of conformity are available upon request.

13. Warranty provisions

Warranty period: 2 years from the date of delivery. The warranty will no longer be valid if the module has been opened! The warranty period will be extended by 2 years if the module has been installed by an authorised Qbus installer.

Qbus support must be contacted first in case of shortcomings, after which defect modules can be sent to our service department at no cost:

Qbus NV
Joseph Cardijnstraat 19
B-9420 Erpe-Mere, Belgium
Tel: +32 (0)53 60 72 10
Fax: +32 (0)53 60 72 19
Email address: support@qbus.be

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Annex 1: Smart Grid Heat Pumps

Brand	Type	Connection relay 1	Connexion relay 2
Alpha Innotec	SW H3 · SWC(V) H1/H3 · WZS(V) H3 · PWZS(V) H1/H2/H3	IN5	IN6
	LWCV · LWDV · LW(A)V · LW(A)HV · LWAV+ · Paros · LWP	IN3	IN4
Atlantic	Alf��a Extensa A.I.	EX1 on X11 looped through to L-5 via LQS relay	EX2 on X11 looped through to L-5 via LQS relay
	Alf��a Excellia A.I.	EX1 on X11 looped through to L-5 via LQS relay	EX2 on X11 looped through to L-5 via LQS relay
Bosch	All heat pumps	I1	I4
Buderus	All heat pumps	I1	I4
Bulex	GeniaAir Tek HA x-7.2	S21	X41/FB + 0(1)
	GeniaAir Mono HA x-6	S21	X41/FB + 0(1)
	GeniaAir Split HA x-5	S21	X41/FB + 0(1)
CTC	All heat pumps	K25 (Smart A)	K26 (Smart B)
Daikin	Altherma 2 CB series ⁽¹⁾	LAN adapter: X1A/1+2	LAN adapter: X1A/3+4
	Altherma 3 D-series ⁽¹⁾	LAN adapter: X1A/1+2	LAN adapter: X1A/3+4
	Altherma 3 E-series	X5M/9+10	X5M/5+6
	Altherma 3 RF – EHVH04S18E	X5M/9+10	X5M/5+6
	Altherma 3 RF - EHFH03S18DJ3V ⁽¹⁾	X5M/9+10	X5M/5+6
Ecoforest	EcoAir with hydrokit internal module All ecoGeo units	SG signal2: DI2 (NO configured)	SG signal1: DI1 (NO configured)
Hitachi	Yutaki, Yutampo and Hisense Hi-Therma models	SG ready Input 1	SG ready Input 2
Itho Daalderop	HP-S	K2	ES
LG	Therma V Air/Water	TB_SG1	TB_SG2
Midea	M Thermal Arctic	SG contact	EVU contact
	Swan 2	SG contact	EVU contact
Mitsubishi	Ecodan C-series generatie R2	TBI.3 IN11	TBI.3 IN12
	Ecodan D-series	TBI.3 IN11	TBI.3 IN12
	Ecodan E-series	TBI.3 IN11	TBI.3 IN12
Nibe	All heat pumps	Connecting and assigning to AUX contact	Connecting and assigning to AUX contact
Panasonic	All A2W	DI1 via optional print CZ-NSxP (x=4, 5, 6 of 7)	DI2 via optional print CZ-NSxP (x=4, 5, 6 of 7)

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Stiebel Eltron	HPG-I (D/C), HMS, WPL IKCS, HSBC 180, HSBC 200 S, HSBC 300 Cool Necessary: WPM system manager and ISG module	X1.13.3 on Stiebel WPM system manager	X1.13.1 on Stiebel WPM system manager
Thermastage	Thermastage Compact 05-11	EX1	EX2
	Thermastage Compact 13-16	EX1	EX2
Thermia	Atlas	BM card: D21 (408) or EM3 card D95 (408)	BM card D22 (409) or EM3 card D96 (409)
	Calibra	BM card: D21 (408) or EM3 card D95 (408)	BM card D22 (409) or EM3 card D96 (409)
	Mega	BM card: D21 (408) or EM3 card D95 (408)	BM card D22 (409) or EM3 card D96 (409)
	Athena	BM card: D21 (408) or EM3 card D95 (408)	BM card D22 (409) or EM3 card D96 (409)
Vaillant	aroTHERM pure /7.2 (uniTOWER /7.2)	S21	X41/FB + 0(1)
	aroTHERM plus /6 (uniTOWER VIH /6 / VWZ MEH 97)	S21	X41/FB + 0(1)
	aroTHERM /5	S21	X41/FB + 0(1)
	flexoCOMPACT /4	S21	X41/FB + 0(1)
	flexoTHERM /4	S21	X41/FB + 0(1)
	aroTHERM VWL /2	S21	X41/FB + 0(1)
Viessmann	All Vitocal heat pumps (since 08/2018).	W01C control: 216.1 One Base control: 143.4	W01C control: 216.4 One Base control: 143.5
Weishaupt	WWP WEM / WWP T300A / WWP WPM	SGR1 – input H1	SGR2 – input H2

(1) LAN adapter is required (version BRP069A61).

Green marked devices are compatible since April 2025.

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Annex 2: Heat pump boilers with PV contact

Brand	Type	Connection relay
Atlantic	Explorer V4	Relay on A1 and B2, bridge between A2 and B1.
	Calypso VM	Black screw terminal I1.
	Calypso Split inverter	Connection 11 & 12.
Ariston	Nuos Plus Wifi	SIG2 (switching with Luqas relay at 230V)
	Nuos Split Inverter Wifi	SIG2 (switching with Luqas relay at 230V)
Bosch	Compress 5000DW	'GND' and 'KEIN'
Bulex	MagnaAqua /3 (C)	PV ECO via HP contact (1: off-peak hours, only WP) or PV MAX via HP contact (2: WP hygostat + resistance)
DC Innova	Aircoheater 2.0	CP contact
Itho Daalderop	WPU	I2 on the control board.
Stiebel Eltron	SHP-A 220 series (from 2018)	X3/1 and X0/1, see the Stiebel Eltron manual for the complete diagram.
	SHP-F 300 series (from 2018)	X3/1 and X0/1, see the Stiebel Eltron manual for the complete diagram.
Thermor	Aeromax Premium Version 4	Relay on A1 and B2, bridge between A2 and B1.
Vaillant	aroSTOR VWL B(M)	PV ECO through HP contact (1: off-peak hours, HP only) or PV MAX through HP contact (2: HP + resistor)
Viessmann	Vitocal 262-A type T2W	FV/PV contact
	Vitocal 060-A	Multifunction relay
Wolf	All models	SG/PV contact

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Annex 3: Compatible charging stations using Modbus TCP/IP

Brand	Type
ABB	Terra AC wallbox via Modbus RS485 for models without MID display, via Modbus TCP/IP or RS485 for models with MID display)
Alfen	Eve Single S-line (1)
	Eve Single Pro-line (1)
	Eve Double Pro-line (1)
Blitzpower	Wall (single & double)
	Tower (single & double)
	Push (single & double)
Easee	Charge Up
	Charge Max
Enovates	Single Wallbox (As of firmware v2.10.1.1)
emosS	EVAII and Omni
e-RS	Single & Double
Mennekes	AMTRON® PROFESSIONAL Single & Twincharge
	AMEDIO Professional
	Amtron Compact 2.0s
	Amtron 4You 310, 510 en 560
	Amtron 4Business 710 en 730
Peblar	Peblar Home
	Peblar Business
Spelsberg	Wallbox Smart Pro
Veton	One
	Two
	Wall
	Wall Plus

(1) : Option Load Balancing Active (905661011) required

Devices marked in green are compatible since April 2025.

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Annex 4: Compatible inverters via Modbus TCP/IP

Brand	Type	Remark
Huawei	SUN2000 (Luna battery optional)	A WLAN/FE (SDongleA-05) dongle is always required. Following products require a minimum firmwareversion: <ul style="list-style-type: none">• SDongleA-05: V100R001C00SPC124• SUN2000L: V200R001C00SPC115• SUN2000-M1/M2: V100R001C00SPC139
SMA	Sunny Tripower Smart Energy	The following components are required: Sunny Home Manager, SMA EnergyMeter or SMA Energy Meter CT.
Solax	X1 & X3 Hybrid G4 series	Use Pocket Wifi+LAN dongle (1040060001) for communication via Modbus TCP/IP
Sungrow	SHx.x	

Devices marked in green are compatible since October 2025.

Annex 5: Compatibile kWh-meters via MODBUS TCP/IP of MODBUS RS485

Merk	Type	Settings
Siemens	7KM PAC2200 MODBUS RTU	
	7KM PAC2200 MODBUS TCP	IP-adress
Socomec	MODBUS RTU: Countis Ex3; Countis Ex4	Baud rate 38,4k (38400) ; Stop bit: 1; Parity: NO
	MODBUS TCP/IP : Countis Ex7; Countis Ex8	IP-adres

Devices marked in green are compatible since October 2025.