

How to connect the Wattsonic GEN3 inverter via RS485



SHE is not responsible for any errors made during installation. You can connect the SHE module to all supported inverters yourself (see the list of supported inverters). However, the connection may only be carried out by a person with the required electrical qualifications in accordance with Act No. 250/2021 Coll. on occupational safety in connection with the operation of designated technical equipment (Czech Republic), or in accordance with the applicable local regulations. If you feel that the connection exceeds your technical knowledge, you can order professional installation on our website.



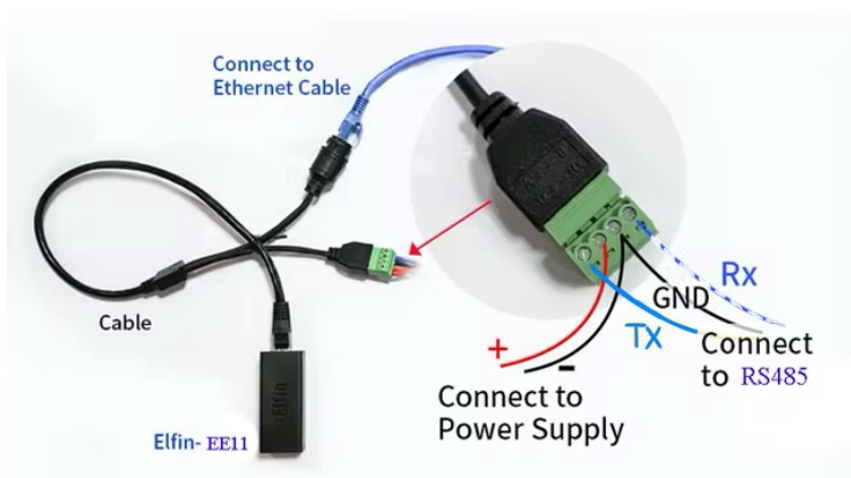
The SHE device is not compatible with other control units. It is not possible to connect several control units at the same time, because their commands or the connection itself would interfere with each other. In addition, most inverters do not allow more than one active connection at a time, even if one device is connected via TCP/IP and the other via RS485.

Required equipment and materials:

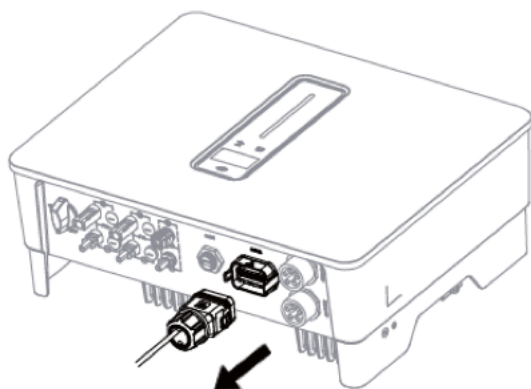
- Converter (at least one):
 - EE11A (LAN)
 - EW11A (Wi-Fi)
 - Protoss-PE11-M
- HC3 or HC3L unit
- Wattsonic GEN3 photovoltaic inverter 6/8/10/12/15/20K-25A-3P
- Ethernet cable
- Wire cutters
- Screwdriver for the terminal block

Connection procedure:

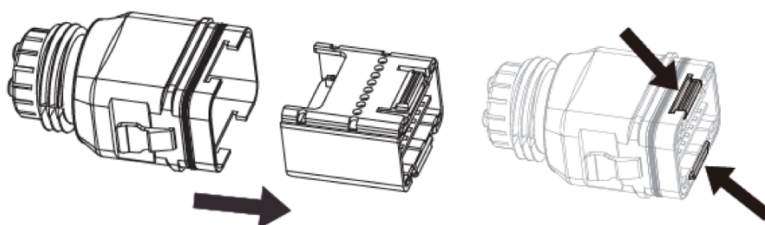
1. Strip about 5.5 cm of the outer sheath of the Ethernet cable to expose the individual wires.
2. Remove all wires except the white-blue and the blue one.
3. Connect one end of the cable to the converter:
 - a. Blue wire to the **TX** terminal
 - b. White-blue wire to the **RX** terminal



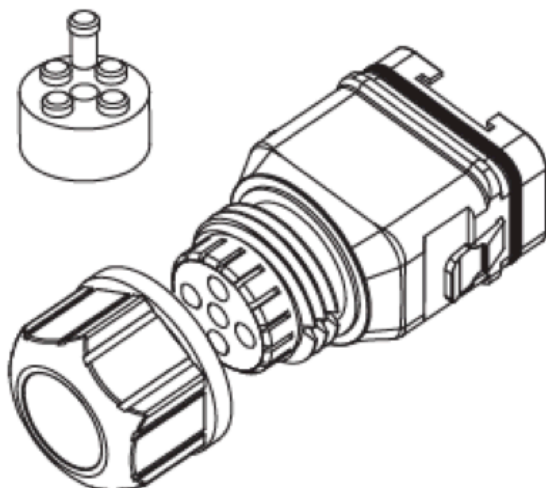
4. Disconnect the COM communication connector on the inverter. To pull it out, press its sides.



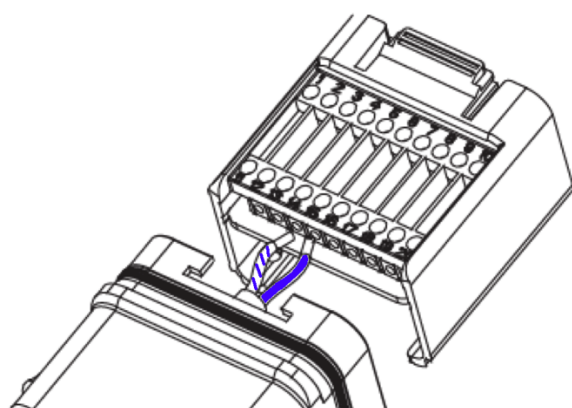
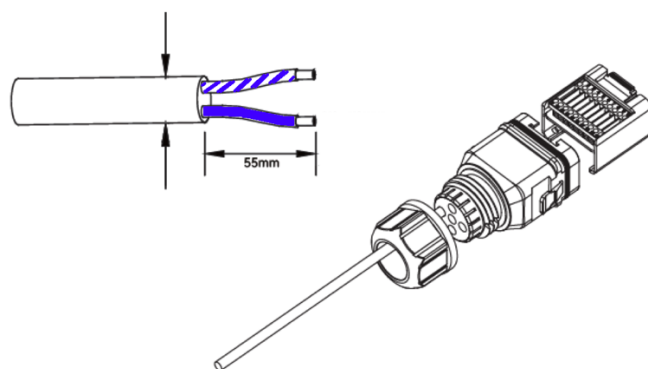
5. Disassemble the terminal block according to the attached picture.



6. Unscrew the nut at the end of the cable gland and prepare the opening for the cable.



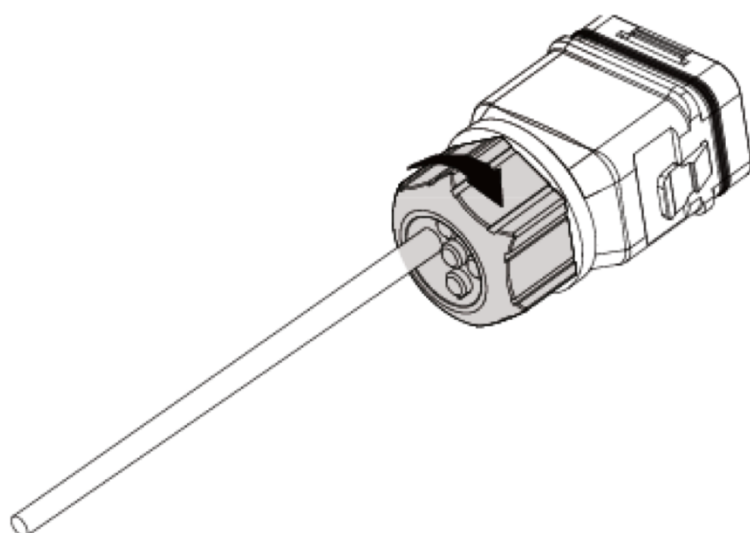
7. Cut off one RJ45 connector of the Ethernet cable.
8. Strip about 5.5 cm of the outer sheath to expose the individual wires.
9. Remove all wires except the white-blue and the blue one.
10. Pass the cable through the nut, the cable gland and the connector body up to the terminal block.



11. Connect the wires to terminals number 13 (white-blue) and 14 (blue) and tighten the terminal screws securely.

13	485 B1 	EMS
14	485 A1 	

12. Reassemble the terminal block and connect it back to the inverter.



Connecting the converter

Connect the power supply of the converter and then continue according to the converter type.

The converters are preconfigured. If you need to set up the converter, you will find the procedure in the Troubleshooting section.

Variant A – EE11 / PE11 converters (LAN)

Connect the converter to the local network with a LAN cable.

The controller (e.g. HC3 / HC3L) and the converter (EE11 / PE11) must be connected to the same network, otherwise communication will not work.

The converter is already preset and has the latest firmware installed. Simply connect it.

Variant B – EW11 / PW11 converters (Wi-Fi)

Connect the converter to the local Wi-Fi network according to the procedure below.

Do not press the reset button – the converter is already preconfigured for a quick and trouble-free installation.

Setting up the connection to the local Wi-Fi network

- **Connect to the open Wi-Fi network broadcast by the module** – its network name (SSID) contains the module name.
- Find its IP address, usually **10.10.100.254**.
- Open the converter settings web page using its IP address; the initial login is admin/admin.
- In **WiFi Settings**:
 - Set **WiFi Mode** to **STA** (client).
 - Click **Scan** to scan the available local Wi-Fi networks.
 - Select the required Wi-Fi network and enter its password.
- The settings are applied only after the converter restarts.

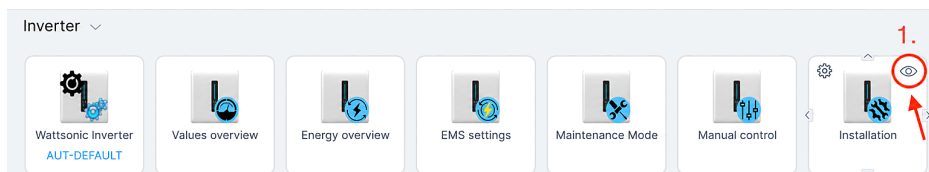


Settings in the inverter application

Warning: Not all cards and tiles are displayed to all users. Each user selects which cards and tiles are displayed on the Display Settings card (sheViewControl application) – levels SHORT, ADVANCED and ADMIN. If you cannot see a described card, check the settings on this card.

Installation card

If you have not installed the inverter QA application yet, follow the manual "Initial Installation HC3 / HC3L → Installer Application".



After the installation, the application tiles appear on the HC3 unit desktop (depending on your display settings): **Wattsonic Inverter**, **Values overview**, **Energy overview**, **EMS settings**, **Maintenance Mode**, **Manual control** and **Installation**.

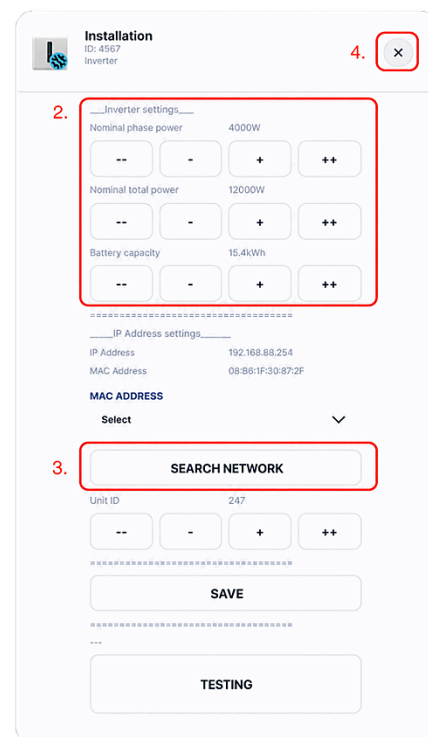
1. Displaying the installation parameters

- Hover the cursor over the **Installation** tile and click the **eye** icon in its top-right corner – the **Installation** card with the detailed installation parameters opens.

2. Setting the parameters of the inverter and the battery storage

First enter the values according to the specific installation:

- **Nominal phase power** (W)
- **Nominal total power** (W)
- **Battery capacity** (kWh)



Installation
ID: 4567
Inverter

2. Inverter settings:

Nominal phase power	4000W		
--	-	+	++
Nominal total power	12000W		
--	-	+	++
Battery capacity	15.4kWh		
--	-	+	++

IP Address settings:

IP Address 192.168.88.254
MAC Address 08-B6-1F-30-87-2F

MAC ADDRESS
Select

3. **SEARCH NETWORK**

Unit ID 247

-- - + ++

SAVE

TESTING

4. X

Connecting the converter and establishing communication

3. Searching the network:

- Click the **SEARCH NETWORK** button.

4. Refreshing the **Installation** card

- Close the **Installation** card and open it again.

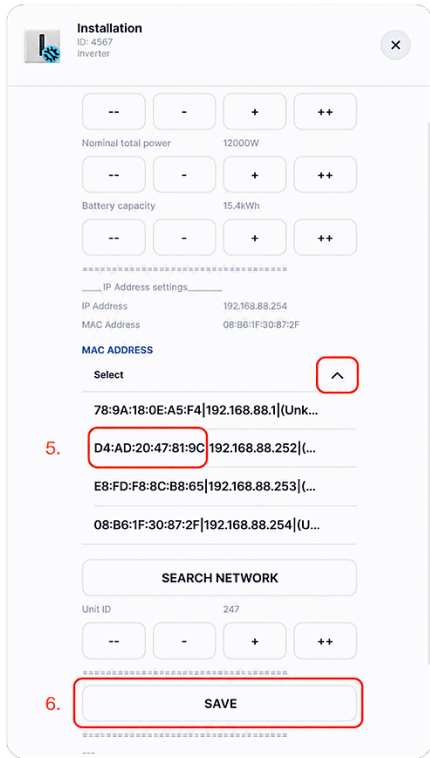
(This reloads the devices available in the network.)

5. Selecting the IP address of the converter

- In the **MAC Address** list, select the correct MAC address of the converter – you will find it on the side of the Modbus RTU RS485 – Modbus TCP converter (Elfin EE11A etc.).

6. Saving the settings

- Click the **SAVE** button and close the **Installation** card.



Installation
ID: 4567
Inverter

-- - + ++

Nominal total power 12000W

-- - + ++

Battery capacity 15.4kWh

-- - + ++

IP Address settings

IP Address 192.168.88.254

MAC Address 08:96:1F:30:87:2F

MAC ADDRESS

Select ^

78:9A:18:0E:A5:F4|192.168.88.1|(Unk...

5. D4:AD:20:47:81:9C|192.168.88.252|(...

E8:FD:F8:8C:B8:65|192.168.88.253|(...

08:B6:1F:30:87:2F|192.168.88.254|(U...

SEARCH NETWORK

Unit ID 247

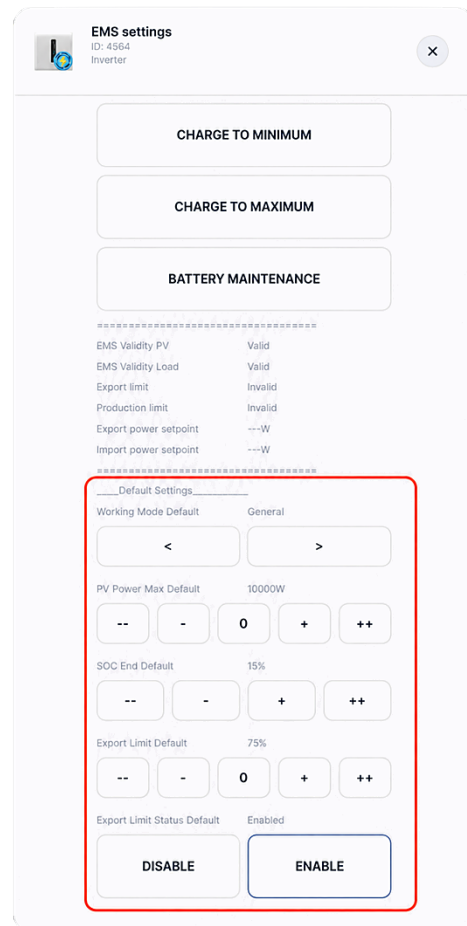
-- - + ++

6. **SAVE**

EMS settings card – Default Settings

Warning: The default values must always be set. The application sets these values back whenever external control ends, so values set directly in the inverter (either by the application or in another way, e.g. the web interface or the inverter app) will be overwritten with these default values.

1. Open the **EMS settings** card.
 - Hover the cursor over the **EMS settings** tile and click the **eye** icon in its top-right corner – the card with the detailed parameters opens.
 - Here you set the basic parameters for controlling the inverter and the battery.
2. Inverter mode (**Working Mode Default**)
 - For the Wattsonic inverter, set the mode to **General** (default value).
3. Minimum SOC (State of Charge) (**SOC End Default**)
 - Determines the level to which the battery may be discharged.
 - For example, a value of 15 % means that the battery is discharged to no less than 15 % of its capacity.
4. Export limit (**Export Limit Default**)
 - Copy the value from the settings made by the installation company that installed the PV system.
 - The export limit is determined by the contractually agreed maximum export power (specified in your agreement with the distribution system operator, DSO).
 - Calculation formula:
contractually agreed maximum export power (e.g. 8.88 kW) ÷ inverter power (e.g. 12 kW) × 100 = 74 %
5. Export enabled / disabled (**Export Limit Status Default – ENABLE / DISABLE**)
 - This option switches the active control of the export limit according to the setting above on or off.
6. PV power (**PV Power Max Default**)
 - You can find the value on the rating plate on the side of the inverter.



EMS settings
ID: 4564
Inverter

CHARGE TO MINIMUM

CHARGE TO MAXIMUM

BATTERY MAINTENANCE

=====

EMS Validity PV	Valid
EMS Validity Load	Valid
Export limit	Invalid
Production limit	Invalid
Export power setpoint	-->W
Import power setpoint	-->W

=====

Default Settings

Working Mode Default: General

< >

PV Power Max Default: 10000W

-- - 0 + ++

SOC End Default: 15%

-- - + ++

Export Limit Default: 75%

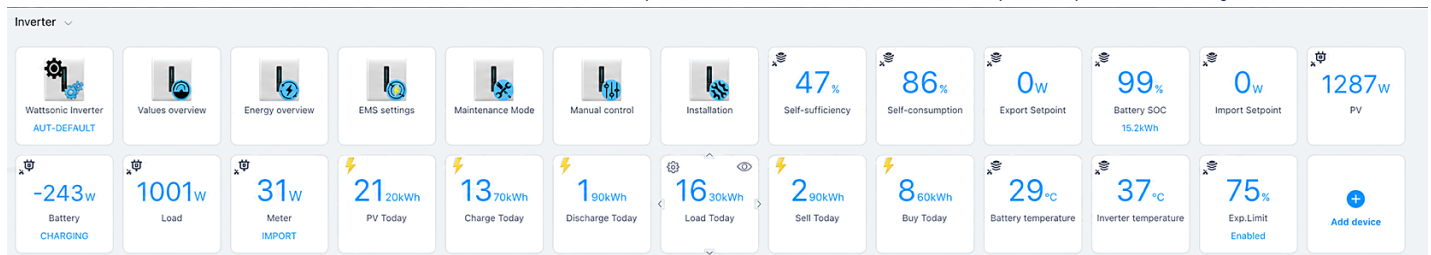
-- - 0 + ++

Export Limit Status Default: Enabled

DISABLE ENABLE

Communication check:

- After the SHE system starts, check that the communication works correctly. The resulting state should be as follows:
 - The COM icon on the inverter flashes green.
 - The inverter tiles on the HC3 unit desktop show current values (for example PV power, battery SOC and load).



Troubleshooting:

Setting up the Modbus TCP-RTU LAN converter EE11A (LAN converter)

1. Connect the power supply.
2. Connect to the data network (switch).
3. Find the IP address of the converter in the LAN:
 - a. IP scanner
 - b. Via the **Installation** card → **SEARCH NETWORK** (see the **Installation** card section above).
4. Open the converter settings web page using its IP address, e.g. 192.168.0.43; the initial login is admin/admin.
5. Continue with the converter system parameters (**System Settings**) below.

Setting up the Modbus TCP-RTU WiFi converter EW11A (Wi-Fi converter)

Setting the **SmartLink** mode – connection to the local Wi-Fi network

- After switching the module on, briefly press the button (0.2–1.5 s) and release it so that the module switches to the "SmartLink" configuration mode and waits for the password and other information.

Reset (only perform in case of problems)

- After switching the module on, press and hold this button (> 4 s) and release it so that the module returns to the factory settings.

1. Setting up the connection to the local Wi-Fi network

- Connect to the open Wi-Fi network broadcast by the module – its network name (SSID) contains the module name.
- Find its IP address, usually **10.10.100.254**.
- Open the converter settings web page using its IP address; the initial login is admin/admin.
- In **WiFi Settings**:
 - Set **WiFi Mode** to **STA** (client).
 - Click **Scan** to scan the available local Wi-Fi networks.
 - Select the required Wi-Fi network and enter its password.
 - The settings are applied only after the converter restarts.

WiFi Settings

WiFi Mode: STA

STA SSID: plyspoCAP24

STA KEY:

Scan

Telnet Settings

2. If the connection from the previous step is active, you can continue with the settings and skip the next two steps.
3. Find the IP address of the converter in the LAN.

4. Open the converter settings web page using its IP address, e.g. 192.168.0.43.
5. Setting the converter system parameters – **System Settings**
 - Login settings – optional
 - Enable DHCP
 - Enable Telnet
 - Enable Web Settings
 - Enable Modbus Auto Timeout

System Settings

Change the device system settings

Authentication	
User Name	admin
Password	 
Basic Settings	
Host Name	Eport-EE11
WAN Settings	
DHCP	☒ ON
DNS	223.5.5.5
Telnet Settings	
Enable	☒ ON
Telnet Port	23
Echo	☐ OFF
Web Settings	
Enable	☒ ON
Web Port	80
NTP Settings	
Enable	☐ OFF

6. Setting the serial line parameters – Serial Port Settings

- Baud Rate – according to the settings of the inverter communication line, typically 9600 Bd
- Data Bit 8, Stop Bit 1, Parity None
- Buffer Size 1024, Gap Time 50
- Flow Control Half Duplex
- Cli Disabled
- Protocol Modbus

Serial Port Settings

change the device serial port settings

Basic Settings	
Baud Rate	9600 ▼
Data Bit	8 ▼
Stop Bit	1 ▼
Parity	None ▼

Buffer Settings	
Buffer Size	1024
Gap Time	50

Flow Control Settings	
Flow Control	Half Duplex ▼

Cli Settings	
Cli	Disable ▼

Protocol Settings	
Protocol	Modbus ▼

7. Communication settings – Communication Settings

- Protocol Tcp Server
- Local Port 502, Buffer Size 1024, Keep Alive 60, Timeout 300 s
- Max Accept 1
- Security Disable, Route UART
- The settings are applied only after the converter restarts. You can restart it by disconnecting the power supply or by a complete restart on the last page of the settings.

Communication Settings

change the device socket settings

netp

+Add

Basic Settings

Name

netp

Protocol

Tcp Server

Socket Settings

Local Port

502

Buffer Size

1024

Keep Alive(s)

60

Timeout(s)

300

Protocol Settings

Max Accept

1

More Settings

Security

Disable

Route

Uart