REDUXI CONTROLLER · KNOWLEDGE BASE

How to connect Reduxi P1 Ultra / Pro with an energy meter and Reduxi Controller

The P1 Ultra reads your smart meter and forwards the data to the Reduxi Controller via TCP/IP.

- Reduxi P1 Ultra / P1 Ultra Pro · Reduxi Controller
- P1 / HAN / I1, M-Bus, RS485
- TCP/IP via Wi-Fi (Pro: also LTE)



Reduxi P1 Ultra / P1 Ultra Pro

Text description of this image

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1 About the P1 Ultra and P1 Ultra Pro

1.1 Device description

The device collects data from the smart meter and converts the meter communication into TCP/IP communication. It forwards the data to the Reduxi Controller.

The P1 Ultra Pro also supports LTE via a SIM card and an external LTE antenna. For the LTE configuration, see **Point 4**.

The supported interface and communication protocol depend on the smart meter model and the country.

1.2 Supported meter interfaces and communication protocols

Meter interfaces:

- P1 / HAN / I1
- TTL (P1) via RJ12
- M-Bus via 2-wire connection, RJ12 or RJ45
- RS485 via 2-wire connection

Communication protocols:

- DSMR (IEC 62056-21)
- DLMS/DSLM Push

Check the list of supported smart meter models: List of supported devices.

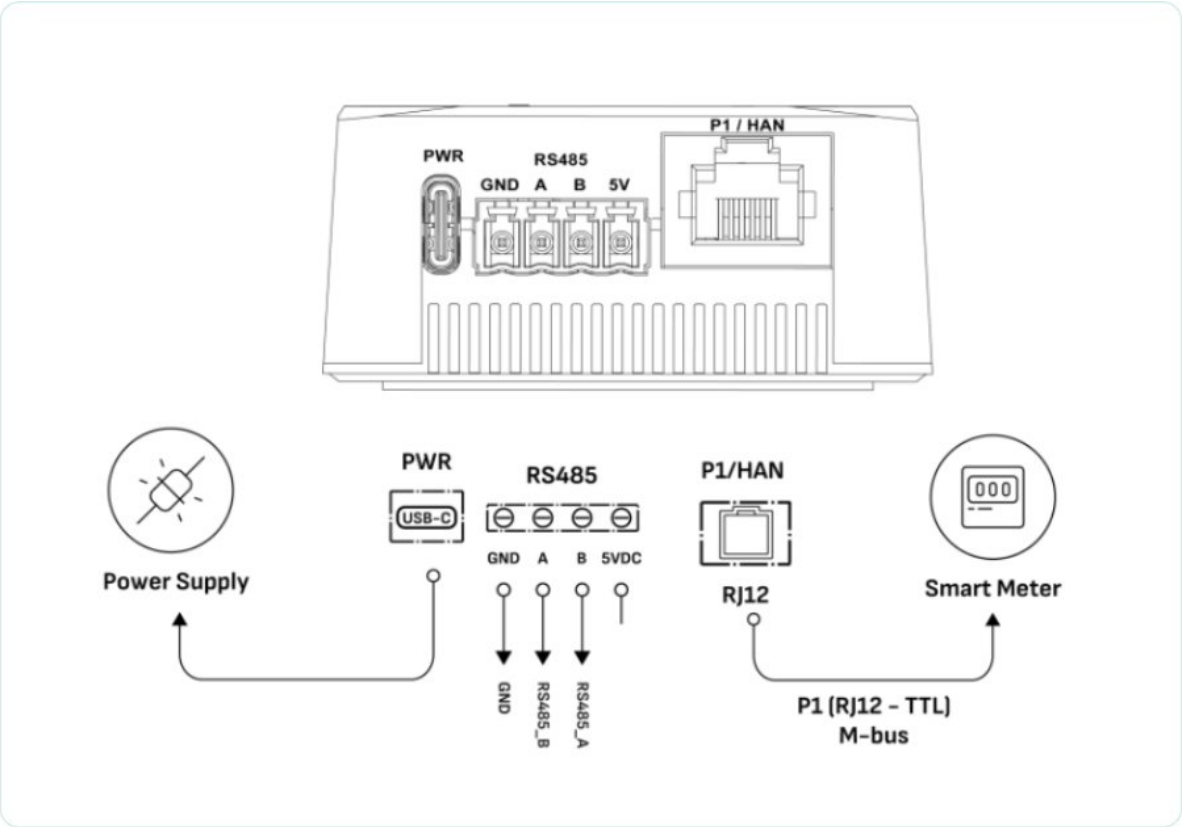
2 Required equipment

You need the following components:

- [ ] Reduxi P1 Ultra or P1 Ultra Pro
- [ ] Power supply for the device
- [ ] RJ12 cable (supplied) or a cable with the same wire sequence on both ends (1:1 connection)
- [ ] Smart meter with an activated HAN/P1 port
- [ ] P1 Ultra Pro with LTE: active SIM card and external LTE antenna
- [ ] Reduxi Controller in the same network
- [ ] Laptop or tablet with internet access to configure the device in Reduxi

3 Connect the device to the smart meter

3.1 Device connections



Connections of the P1 Ultra

Text description of this image

Note

RS485 connects additional devices. It is not required for the basic operation of the P1 Ultra.

3.2 P1 / HAN (RJ12)

This communication connector connects the device to the smart meter. Connect it to the activated HAN/P1 port of the smart meter with the supplied RJ12 cable.

Check which smart meters are supported:

3.3 M-Bus

The P1 Ultra and P1 Ultra Pro communicate with compatible smart meters via M-Bus. You can connect M-Bus with:

- a 2-wire M-Bus connection: pin 3 – M-Bus +, pin 4 – M-Bus –
- an RJ12 connector
- an RJ45 connector

Connect the two M-Bus wires from the smart meter to pins 3 and 4 of the RJ12 connector.

> ⚠ **Important**
> The M-Bus connection and the pin assignment on the smart meter differ by meter model. Always check the documentation of the meter manufacturer before you connect.

3.4 Connect to the smart meter

1. **Activate the HAN/P1 port**
   The HAN/P1 port on the smart meter must be activated. For some smart meters, you must request the activation from the electricity distribution system operator.
2. **Connect the RJ12 cable**
   Connect the RJ12 cable between the smart meter and the Reduxi P1 Ultra.
3. **Check the cable**
   Use the supplied cable or a cable with the same wire sequence on both ends (1:1 connection).
4. **Check the LED**
   After you connect the device, the green power LED turns on.

4 Configure the P1 Ultra

4.1 Connect to a Wi-Fi network

1. **Power the device**
   Connect the device to the power supply.
2. **Connect to the device network**
   On your phone or computer, search for the Wi-Fi network `P1WIFI` and connect to it.
3. **Open the web interface**
   Open a web browser and go to **http://p1wifi.local**

4 Log in

Username: `admin`

Password: printed on the device label.



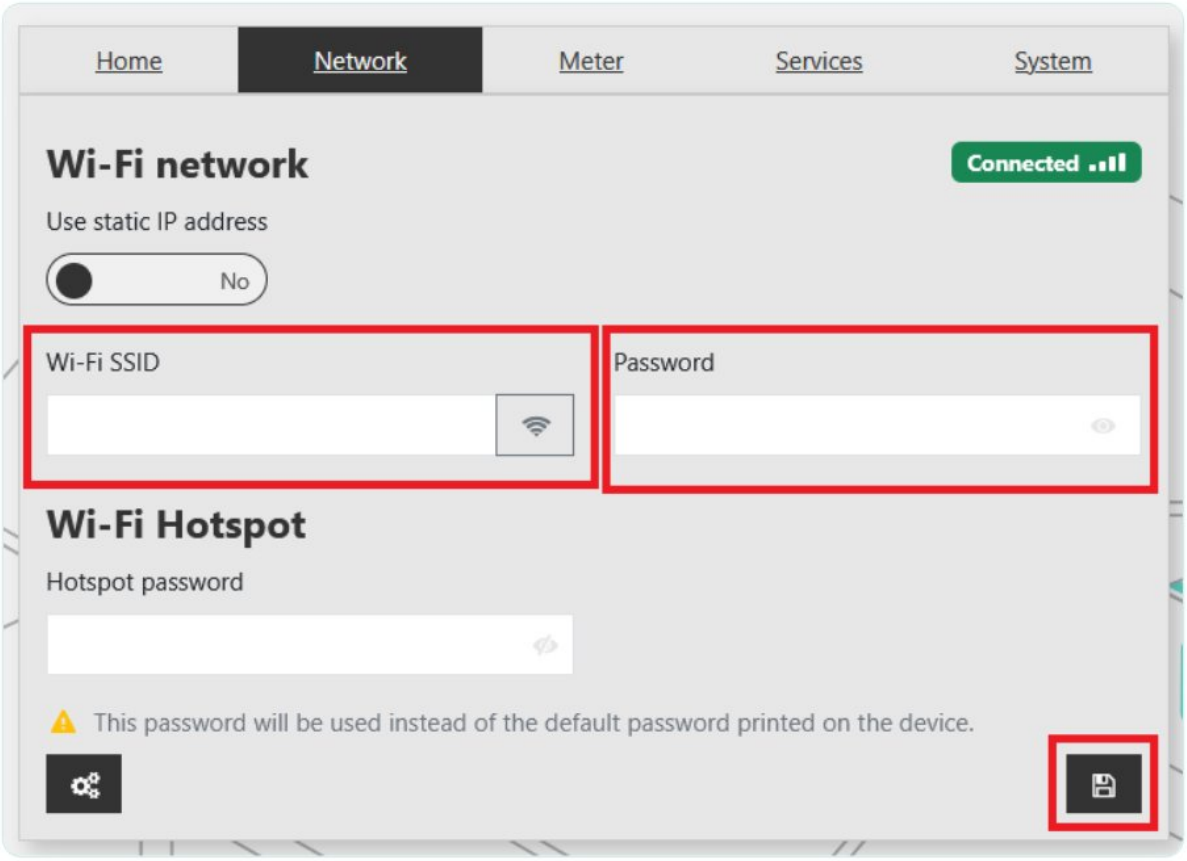
Sign-in page of the P1 Ultra

1. **Text description of this image**

Screenshot of the sign-in page of the P1 Ultra web interface. Reduxi logo (lightning bolt and the word reduxi) with the text P1 - ULTRA 2 below it. Grey Sign-in box with the heading Sign-in. Username:

5 Enter the Wi-Fi credentials

Enter the credentials of your local Wi-Fi network. We recommend assigning a static IP address to the device. Then click **Save** in the bottom-right corner. The device connects to the selected Wi-Fi network and uses the configured IP address.



Network tab: Wi-Fi SSID and password

1. **Text description of this image**

   Screenshot of the P1 Ultra web interface, Network tab. Top tabs: Home, Network (selected, dark), Meter, Services, System. Section Wi-Fi network with a green status badge Connected (signal bars)

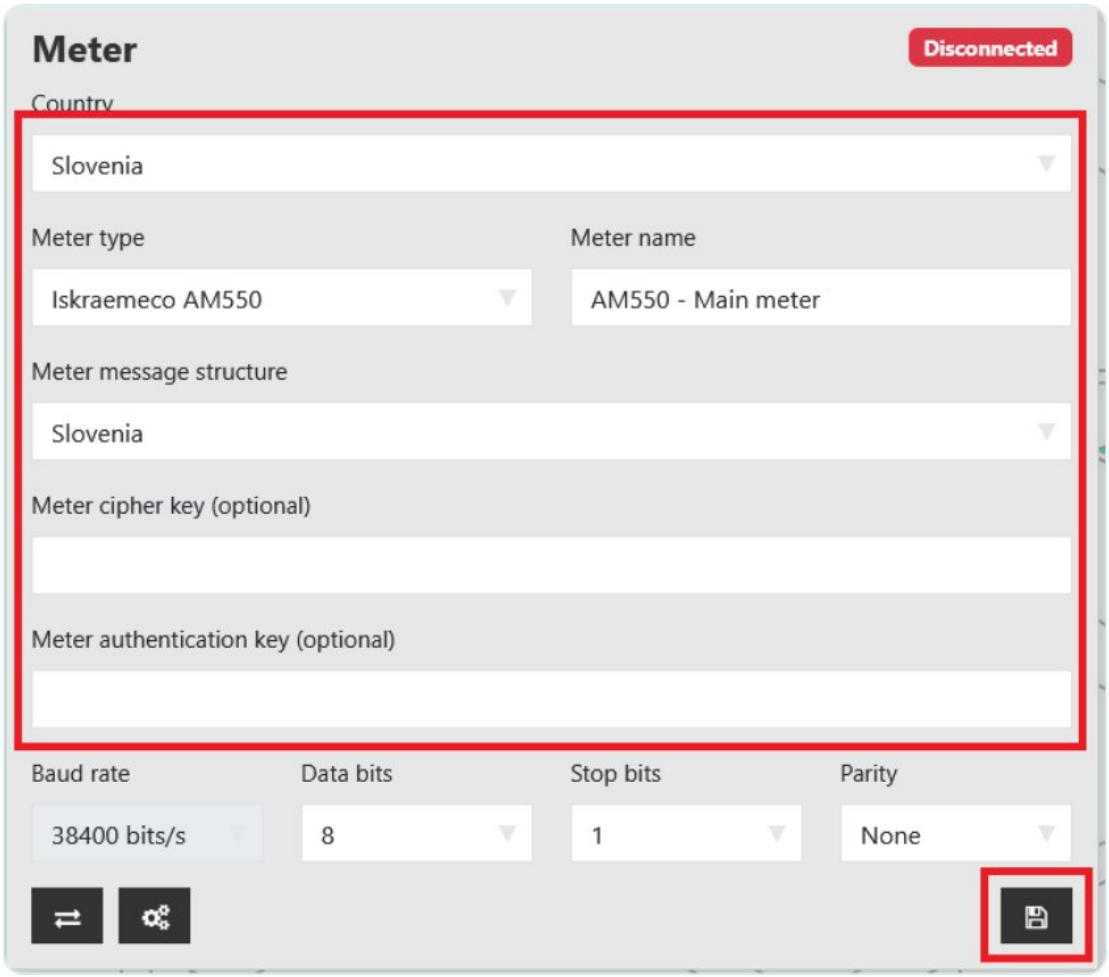
4.2 Meter settings

Under the **Meter** tab, configure:

- Country
- Meter type
- Meter name

If encryption is enabled on the smart meter, also enter the required encryption parameters.

If the meter uses current transformers (CT), click the additional settings icon at the bottom. There you configure the CT and VT ratios.



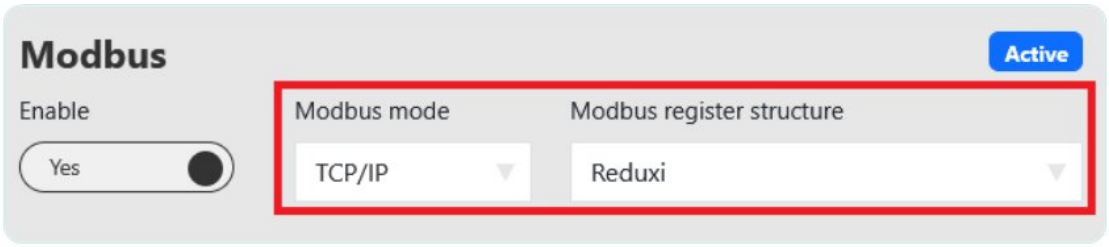
Meter tab

Text description of this image

4.3 Services settings

Under **Modbus**, select one of the two communication options.

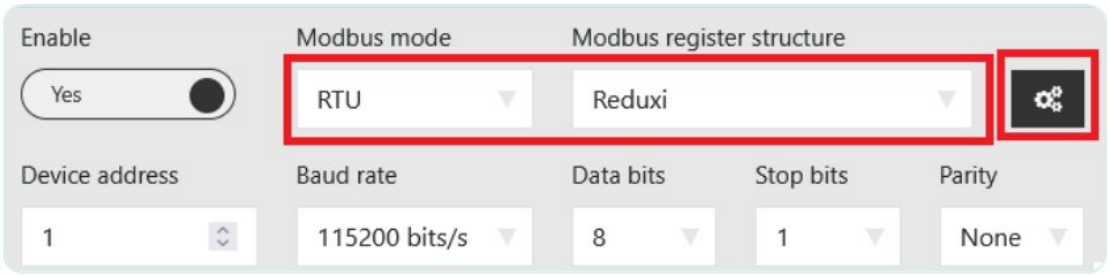
Option 1: Modbus TCP/IP



Modbus TCP/IP

Text description of this image

Option 2: Modbus RTU (RS485)



Modbus RTU (RS485)

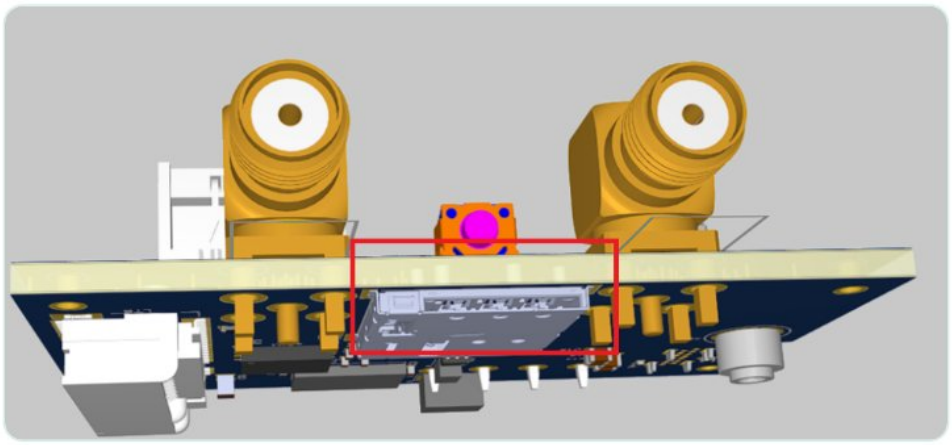
Text description of this image

4.4 LTE connection (P1 Ultra Pro)

The P1 Ultra Pro also supports LTE with a SIM card and an external LTE antenna.

1 **Insert the SIM card**

Insert an active SIM card into the P1 Ultra Pro.



SIM card slot

1. **Text description of this image**

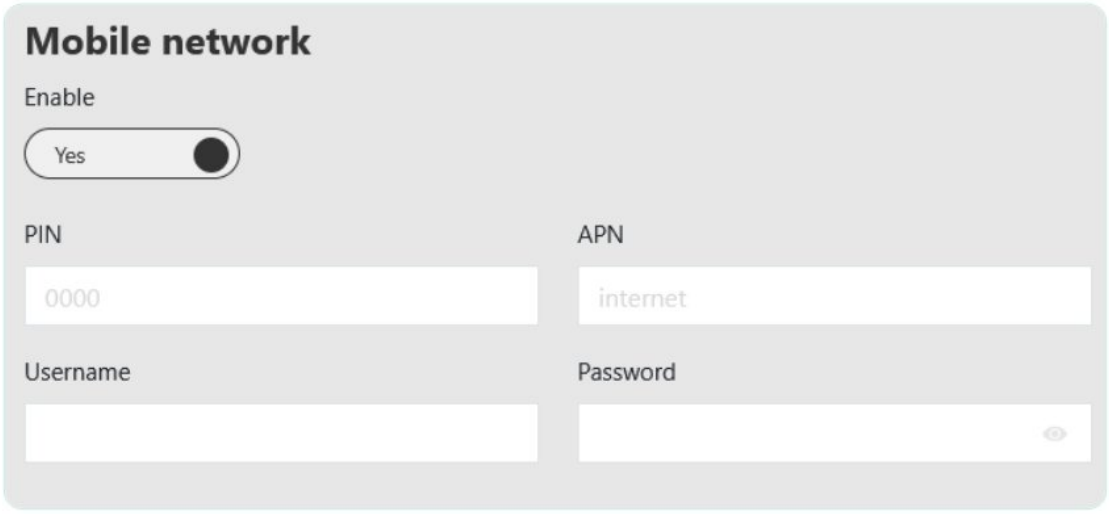
   Render of the P1 Ultra Pro circuit board seen from the side. Beige-edged board with blue underside, two gold antenna connectors standing up on the board (left and right), a small red, orange

2 **Connect the antenna**

Connect the external LTE antenna.

3 Enable the mobile network

Enable **Mobile network**.



Mobile network settings

1. **Text description of this image**

Screenshot of the Mobile network settings of the P1 Ultra Pro. Heading Mobile network. Enable: toggle labelled Yes (on). Fields: PIN: empty, with a grey example text in the field (value not written here):

4 Enter the APN

Enter the APN settings required by your mobile operator.

5 Enter the access data

If the operator requires it, enter the username, password and SIM PIN.

6 Save

Save the configuration and check that the LTE connection is active.

The required APN settings depend on the mobile operator.

5 Log in to the Reduxi web interface

You can open the Reduxi web interface in two ways:

REMOTE

Reduxi app

Via tunnel connection · works from anywhere

Web browser

In the local network · via IP address or reduxi.local

5.1 Via the Reduxi app

1 Open the app and log in

Launch the Reduxi app on your smartphone or tablet and log in with your credentials.

2 Open Reduxi devices

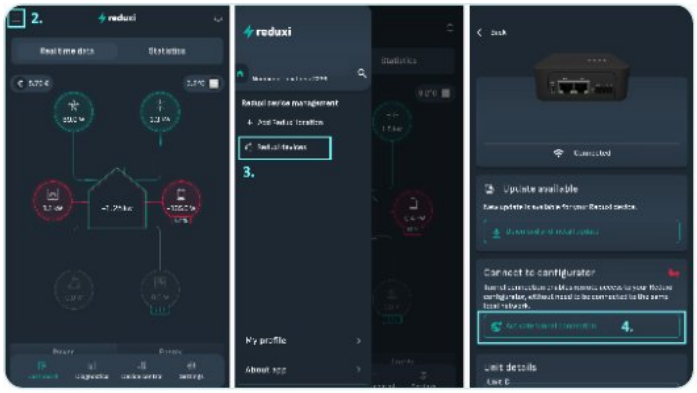
Tap the menu icon (three lines, top left) and select **Reduxi devices**.

3 Activate the tunnel connection

Switch on the tunnel connection and wait a moment until it is active.

4 Open the configurator

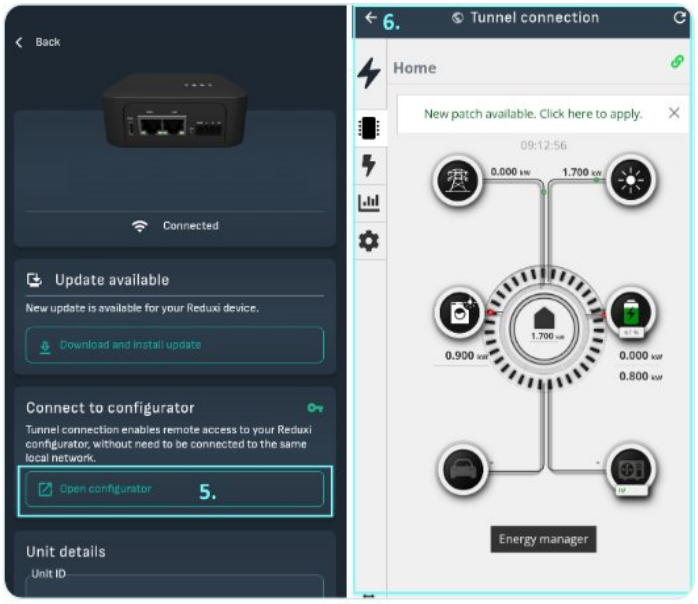
Tap **Open configurator**. The Reduxi web interface opens.



Activate the tunnel connection (step 3)

Text description of this image

Screenshot of three Reduxi mobile app screens side by side, with cyan boxes and number badges 2 to 4. Left screen (dashboard, dark theme): menu icon at top left marked with a box and badge 2; 'reduxi' logo; tabs 'Real time data' (active) and 'Statistics'; price 5.79



Open configurator (step 4)

2. Text description of this image

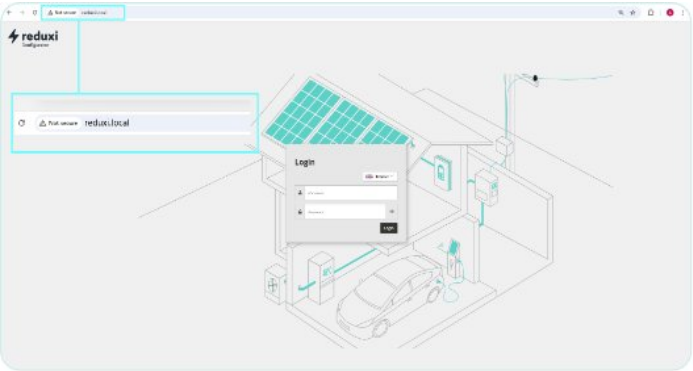
5.2 Via a web browser

1 Open the login page

On a device in the same network, open a web browser and enter the controller's IP address or `http://reduxi.local`. You can find the controller's IP address in your router's device list or in the Reduxi app under **Reduxi devices**.

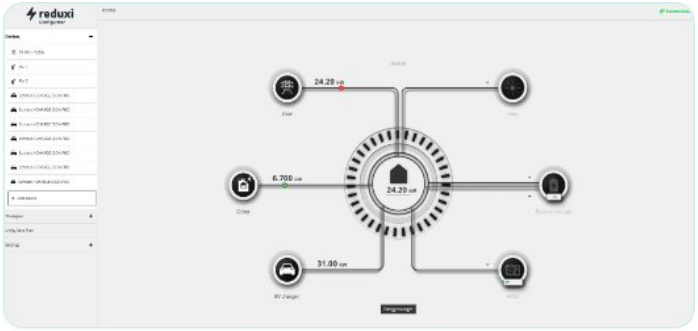
2 Log in

Username: `admin` · Password: `admin` (factory default)



Reduxi Controller login screen

Text description of this image



Controller web interface after login

2. **Text description of this image**

Screenshot of the Reduxi Configurator web interface

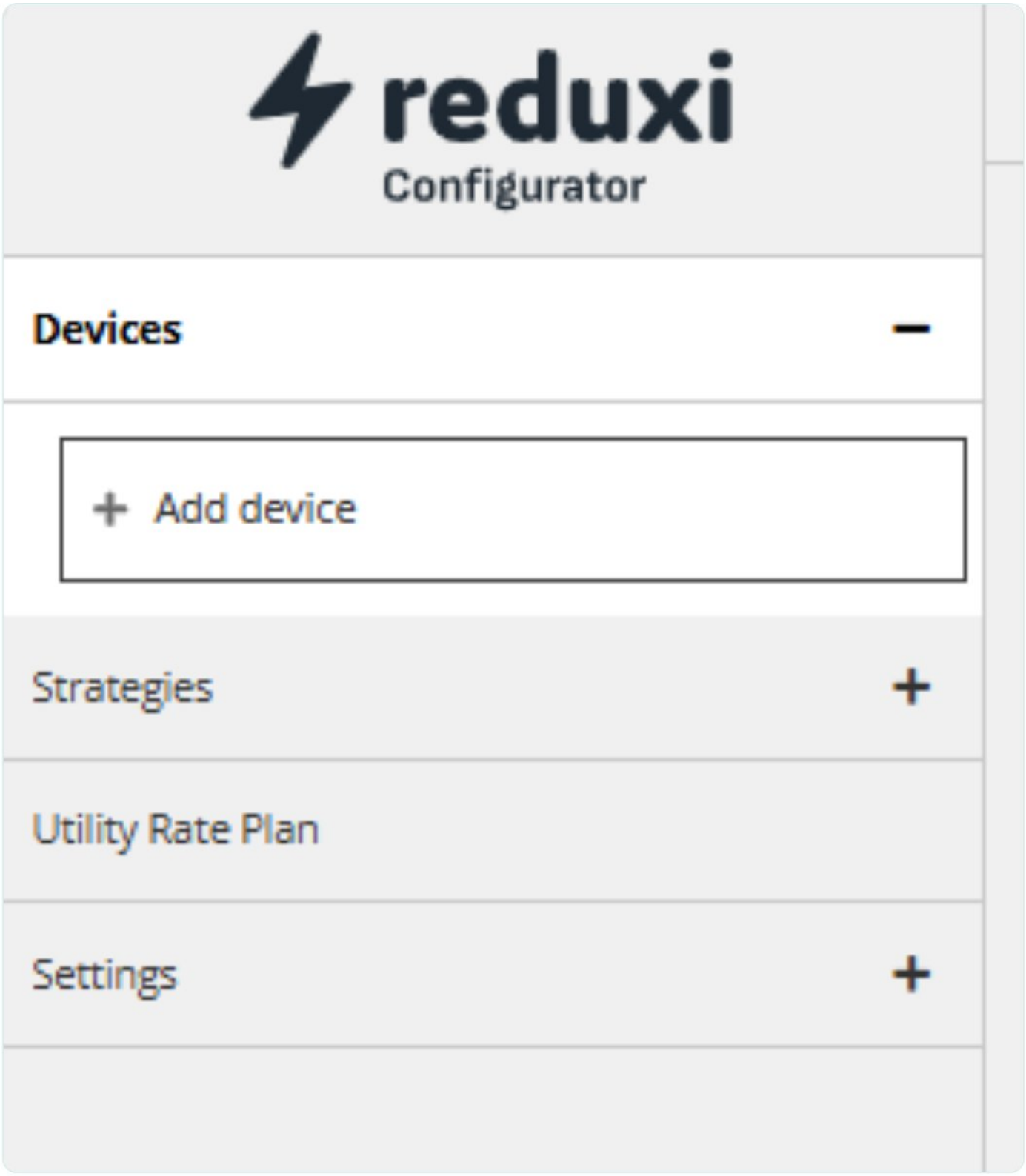
6 Add the P1 Ultra to Reduxi

> Every field of the Add device dialog is described in the Reduxi Configurator user manual: **Add a device**.

Use these steps to add a new P1 Ultra or to edit an existing one.

6.1 Basic settings

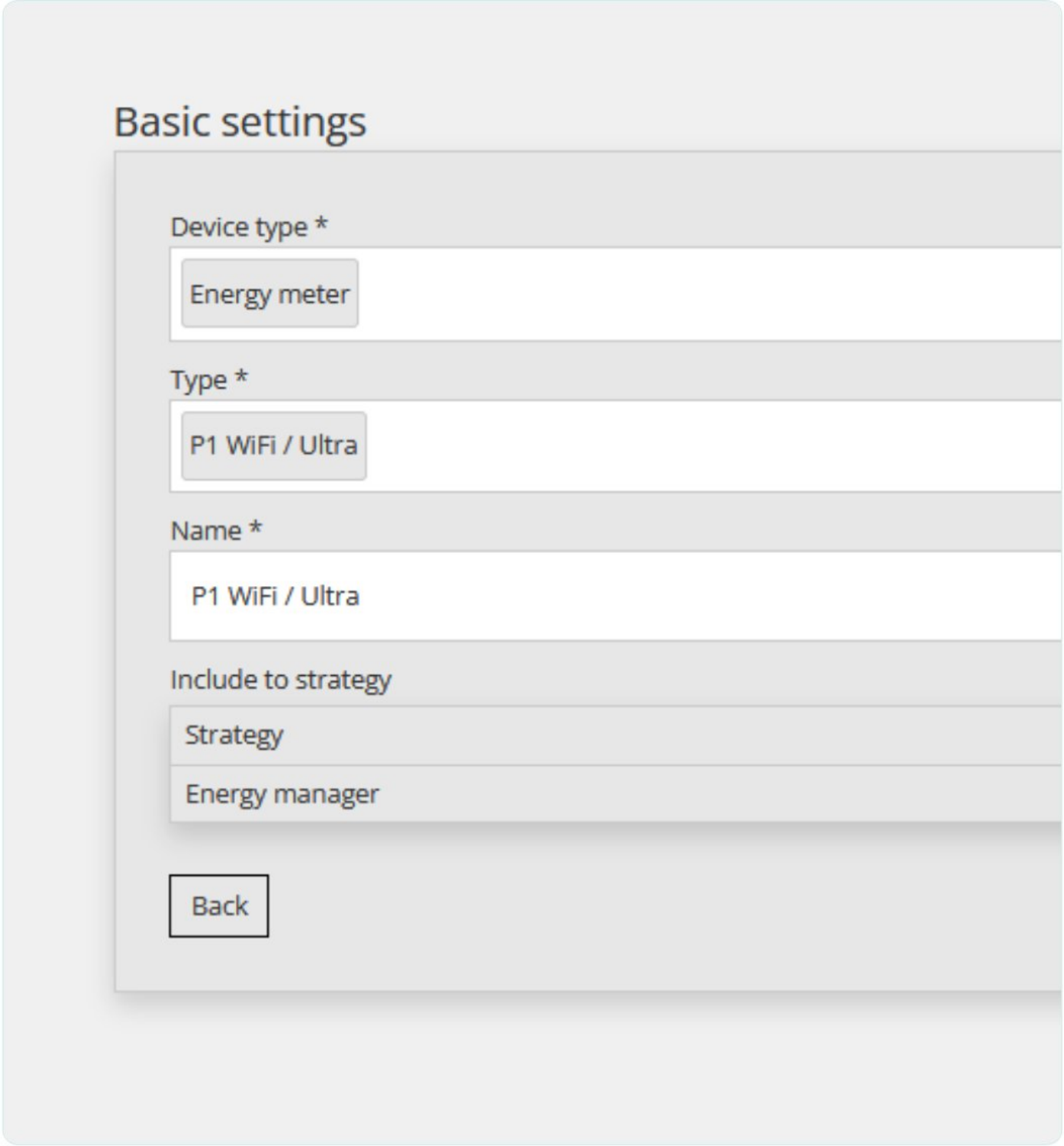
Log in to the **Reduxi Configurator** (see **Point 5**) and click **+ Add device**.



*The **Add device** button*

Text description of this image

Select the basic settings.

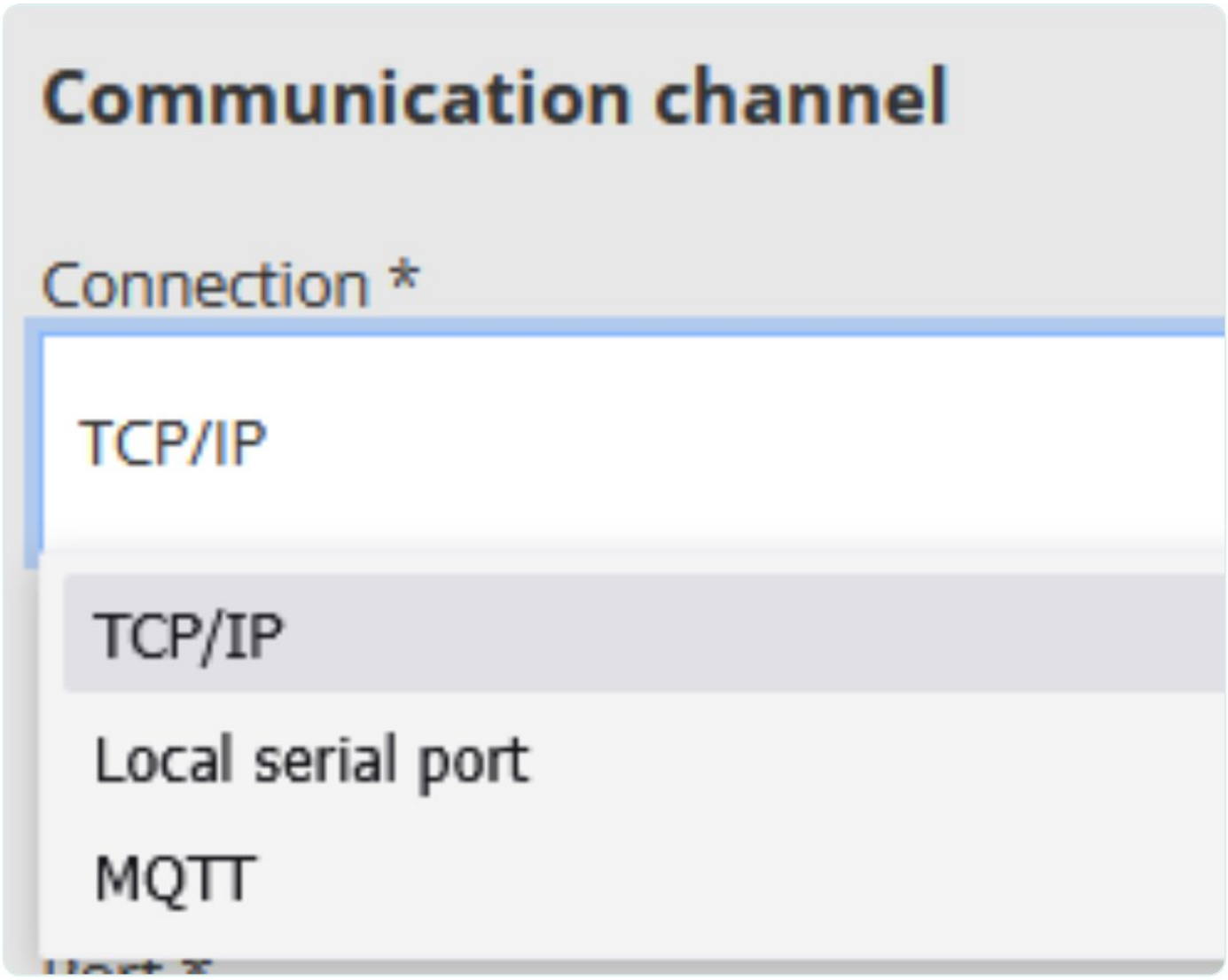


Basic settings

Text description of this image

6.2 Communication settings

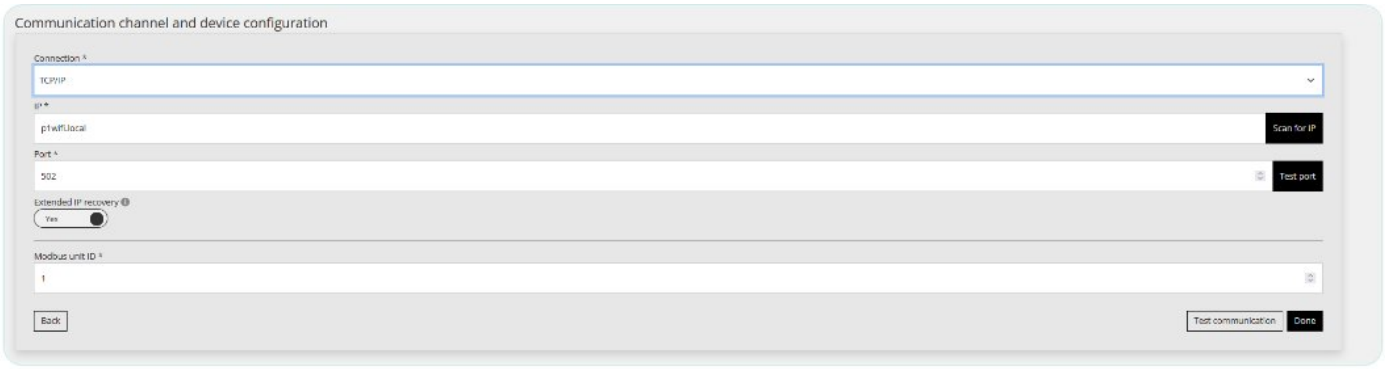
In the communication channel settings, enter the parameters that match your connection to the smart meter.



Communication settings

Text description of this image

Example for TCP/IP:



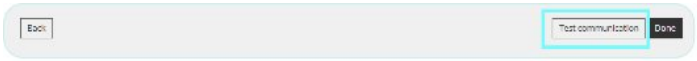
TCP/IP example

Text description of this image

You can enter `p1wifi.local` or the IP address that you configured in the P1 Ultra web interface.

6.3 Test communication

Click **Test communication** at the bottom of the wizard. It reads the P1 Ultra once and saves nothing. If the test succeeds, click **Done**: only **Done** creates the device.



*The **Test communication** button*

Text description of this image

Screenshot of the bottom button bar of a Reduxi Configurator page. Left: button 'Back'. Right: button 'Test communication' (marked with a cyan box) and dark button 'Done'.



*The **Done** button*

2. Text description of this image

If the test fails, check:

- RJ12 cable connection
- Wi-Fi connection
- IP address
- Message structure
- HAN port activation on the smart meter

7 Check the readings

7.1 Last measurements

After communication is established, check the values under **Devices** in the Reduxi Configurator as an additional test.

7.2 Enable control by Reduxi

To use the meter data in the Reduxi strategy, check the device settings under **Devices** in the **Reduxi Configurator**.

To achieve maximum flexibility and energy cost reduction with dynamic prices and dynamic tariffs, define a strategy as described in **Strategies for Reduxi Controller**.

8 LED indicators and factory reset

8.1 LED indicators

The LED indicators show the current status of the device:

LED	MEANING
Green – on	The device is powered.
Blue – flashing	The device is connected to Wi-Fi but is not receiving or transmitting data.
Purple – flashing	The device is connected to Wi-Fi and transmits data successfully.
Red – on or flashing	The device is not connected to Wi-Fi.

8.2 Factory reset

We recommend a factory reset:

- when you replace the smart meter
- when you change the installation location
- when you have connection problems
- before you reconfigure the device

1 Power the device

Connect the device to the power supply.

2 Hold the RESET button

Press and hold the RESET button for about 10 seconds.

3 Wait for the red LED

Wait until the red LED turns on.

4 Release the button

Release the RESET button. The device returns to its factory settings.

9 Troubleshooting

If communication does not work, check the following points.

9.1 Connection to the smart meter

- The HAN/P1 port must be activated.
- The RJ12 cable must be connected properly.
- The cable must use a 1:1 wiring configuration.

9.2 Access to the converter

Try to open **http://p1wifi.local** or the IP address of the converter.

9.3 Local network

- The converter must be in the same network as the Reduxi Controller.
- Check the Wi-Fi signal strength.

9.4 Configuration

Check:

- the IP address of the converter
- the message structure
- the selected smart meter model

9.5 Factory reset

If these steps do not solve the problem, perform a factory reset (see **Point 8**) and configure the device again.

9.6 Smart meters with several HAN/P1 communication types

Some smart meters support several HAN/P1 communication types. If you have communication problems, check:

- whether the HAN port is activated
- which communication protocol the smart meter uses
- whether you selected the correct smart meter model in the Reduxi Configurator

✓ Summary

Preparation (Points 1–2): Check the supported interfaces and protocols. Prepare the device, the smart meter with an activated HAN/P1 port, the cable and a laptop.

P1 Ultra (Points 3–4): Connect the RJ12 cable or M-Bus. Connect the device to your Wi-Fi and set the meter and Modbus settings. P1 Ultra Pro: optional LTE.

Add to Reduxi (Points 5–6): Log in to the Reduxi web interface. Add the device, enter p1wifi.local or its IP address and run Test communication.

Go live (Point 7): Check the last measurements and define a strategy.

→ Common issues

ISSUE	SOLUTION
No data from the smart meter	Check that the HAN/P1 port is activated and that the RJ12 cable uses 1:1 wiring. For some meters, request the activation from the distribution system operator.
The web interface does not open	Open http://p1wifi.local or the IP address of the converter. The converter must be in the same network as the Reduxi Controller.
Red LED is on or flashing	The device is not connected to Wi-Fi. Check the Wi-Fi credentials and the signal strength.
Wrong or no values	Check the smart meter model, the message structure and the protocol of the meter. Perform a factory reset and configure the device again if needed.
Open configurator does not open or stays empty	The tunnel is not active yet. Wait about 30 seconds and check that the controller is online.
Login with `admin` is rejected	The password was changed during installation. Ask the installer. The Reduxi account password does not work here.
`reduxi.local` does not load	Your device is not in the same network as the controller. Use the IP address or the tunnel connection.
Communication test fails, device shows offline	Check reachability, IP address / port / unit ID, and that the protocol is enabled on the device.

Related articles

Matching guides from the Reduxi knowledge base:

Device setup guides
All step-by-step guides for connecting devices to the Reduxi Controller

Strategies for the Reduxi Controller
Energy manager and other strategies explained