

How to connect Mitsubishi Ecodan heat pump with Reduxi Gateway

SG contacts regulate the Mitsubishi Ecodan heat pump via the Reduxi Gateway using relay output signals. Flexible heat pumps cut electricity costs by 30%.

🔧 Mitsubishi Ecodan · Reduxi Controller · Reduxi Gateway

🔌 SG-ready via 2 relay outputs (NO contacts)

🔌 3x current sensors (CT 30:1A)



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1 Required components

To connect the Reduxi Controller to the Mitsubishi Ecodan heat pump you need:

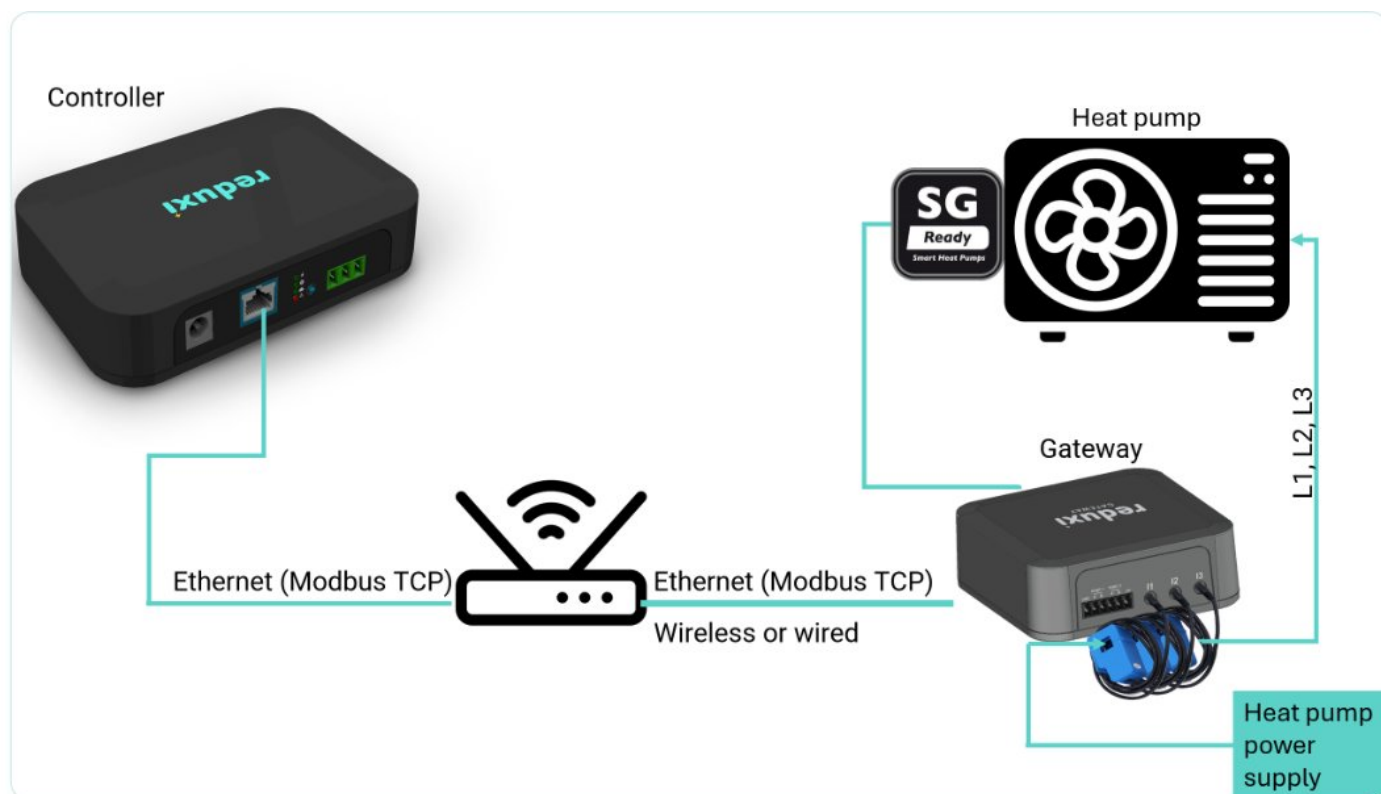
- ☐ Reduxi Controller
- ☐ Reduxi Gateway device with 3x (30:1A) current sensors (CTs)
- ☐ Laptop or tablet with internet access to configure the device in Reduxi

First add the Reduxi Gateway device to the Reduxi Controller. Only then can you commission the heat pump operation modes. The connection is wireless (WLAN) or wired via a UTP cable (LAN). More details: [Gateway to Controller connection](#).

The Reduxi Gateway device includes 3x (30:1A) current sensors (transformers). They measure the electrical current, and so the power, of each phase of the heat pump. Two relay outputs generate signals to the SG-ready contacts. These signals change the heat pump operation mode.

2 Connect the Reduxi Gateway to the local network

The picture shows the entire connection from the Reduxi Controller to the heat pump.



Connection from the Reduxi Controller to the heat pump

Text description of this image

For more information on connecting the Reduxi Gateway, see [How to configure Reduxi Gateway](#).

3 Connect the Gateway relays to the SG-ready contacts

3.1 Locate the SG-ready contacts

Find the exact position of the SG-ready contacts on the circuit board of the heat pump before you connect the relays. The figure shows these positions on the Mitsubishi Ecodan circuit board and their connections to the Reduxi Gateway device.



SG-ready contacts of the Ecodan connected to the Reduxi Gateway

Text description of this image

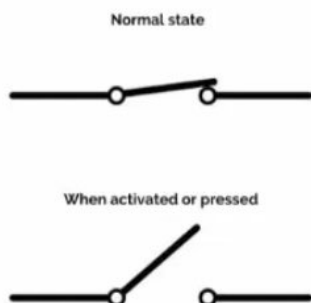
3.2 Use normally open (NO) contacts



Note

The Reduxi Gateway device lets you use each relay output as permanently closed (**Normally Closed – NC**) or open (**Normally Opened – NO**). The Mitsubishi Ecodan heat pump uses **NO** contacts.

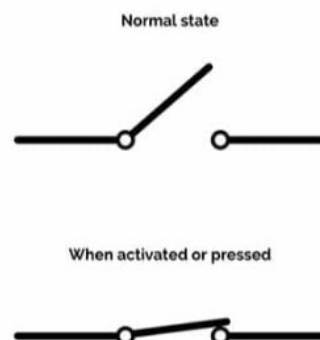
A normally closed (NC) contact/switch



Normally closed (NC)

Text description of this image

A normally open (NO) contact/switch



Normally open (NO)

2. Text description of this image

Diagram on a white background with the title "A

4. Electrical work

4.5 Connecting inputs/outputs

For multiple outdoor units control with FTC (Slave), see section 9.

■ Signal inputs

Name	Terminal block	Con- nector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in <5.1 DIP Switch Functions>.	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in <5.1 DIP Switch Functions>.	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in <5.1 DIP Switch Functions>.	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in <5.1 DIP Switch Functions>.	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in <5.1 DIP Switch Functions>.	
IN8	TBI.3 7-8	—	Electric energy meter 1	*4	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input	*5	
IN12	TBI.3 1-2	—			
INA1	TBI.4 1-3	CN1A	Flow sensor input	*6	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.

SG-ready contact specification

Text description of this image

4 Use the Reduxi Gateway as a meter with current sensors

The current sensors measure the electrical current of the heat pump. They give real-time data on its power consumption. The Reduxi Controller provides the voltage readings. If they are not available, a default voltage of 230 V is used.

The current sensors (CTs) are included in the Reduxi Gateway kit. Connect them to the three inputs, one for each phase, as shown in the picture.



Current sensors connected to the Reduxi Gateway

Text description of this image

Each current sensor covers one phase (L1, L2, L3) of the heat pump.



Current sensors on phases L1, L2 and L3

Text description of this image

5 Log in to the Reduxi web interface

You can open the Reduxi web interface in two ways:



Reduxi app

Via tunnel connection · works from anywhere

REMOTE



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

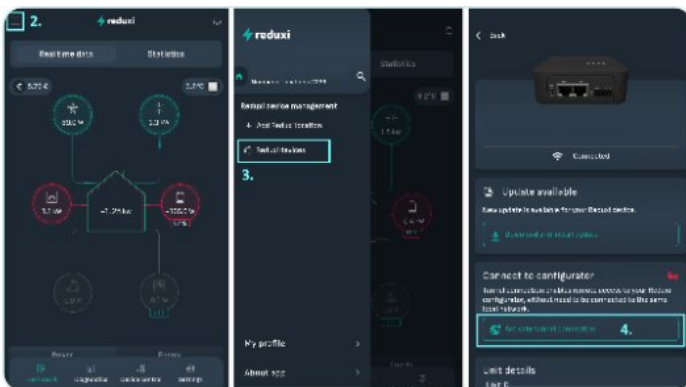
Tap the menu icon (three lines, top left) and select **Reduxi devices**.

3 Activate the tunnel connection

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

4 Open the configurator

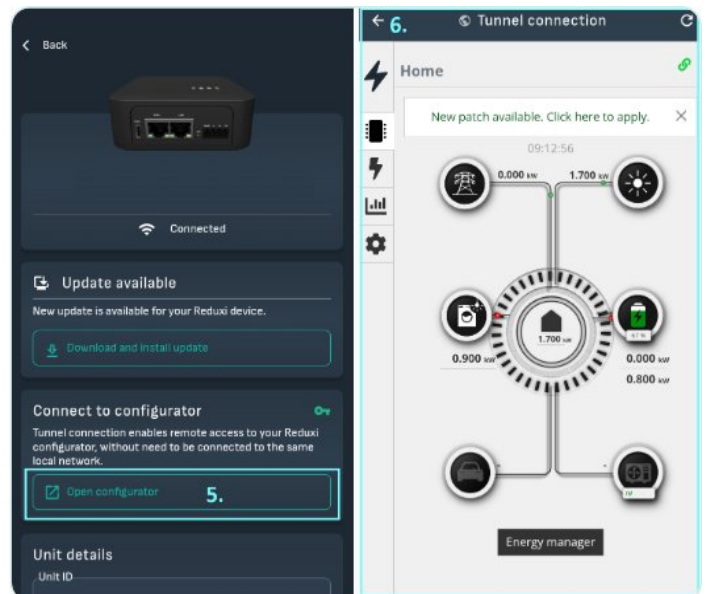
Tap **Open configurator**. The Reduxi web interface opens.



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

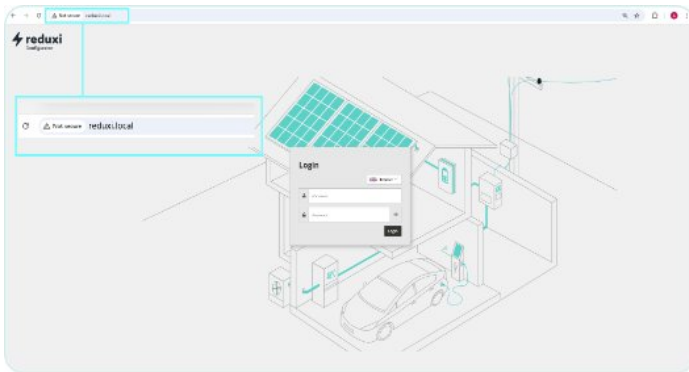
1 Open the login page

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

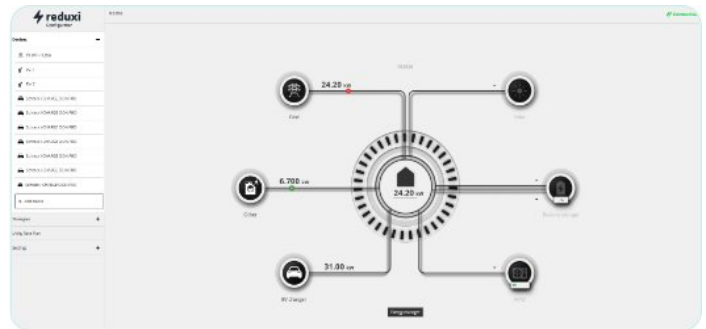
Log in

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 heat pump to Reduxi

Use these steps to add a new heat pump or to edit an existing one.

6.1 Basic settings

Log in locally to the [Reduxi Configurator](#) on the controller (see [Point 5](#)) and press the **Add device** button.

reduxi[⚡]

CONFIGURATOR

Devices



Strategies



+ Add device

+ Add strategy

Settings

Profile

The Add device button

Text description of this image

In the first step, select the basic parameters of the device:

- Device type: **HVAC**
- Type: **Redxi Meter**
- Name: a name of your choice

1 Basic settings 2 Communication channel 3 Advanced settings

Basic settings

Device type *

Type *

Name *

Back Next

Basic settings: device type, type and name

Text description of this image

6.2 Communication settings

The first part of the communication channel connects the Reduxi Gateway to the Reduxi Controller. The fields are populated automatically. Check them against the image.

Communication channel and device configuration

Connection *

TCP/IP

IP *

gateway.local

Port *

502

Modbus unit ID *

1

Communication settings, part 1

Text description of this image

Logic of SG-ready signals combination:

4.9 Smart grid ready

In DHW or heating operation, the commands in the table below can be used.

IN11	IN12	Meaning
OFF (open)	OFF (open)	Normal operation
ON (short)	OFF (open)	Switch-on recommendation*1
OFF (open)	ON (short)	Switch-off command
ON (short)	ON (short)	Switch-on command*2

Note:

- To activate this function, settings on the main remote controller are required. (Main menu → Service → "Function settings" Ref. add: 0, Unit: 1)
- Heating operation mode (compensation curve or flow temp. control) requires the optional wireless remote controller.

*1 Switch-on recommendation has following 2 modes:

Mode 7 Hot water operation

Additional boost temperature is added onto the usual DHW target temperature. (1-Inactive (default) /2-Target temp. +3°C/3-Target temp. +5°C)

Mode 8 Heating operation

Heating ON (permitted heating with thermo ON) range is extended. (1-Inactive (default) /2-Thermo ON temp. +2°C/3-Thermo ON temp. +3°C)

*2 Switch-on command has following 2 modes:

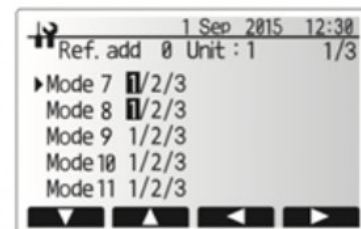
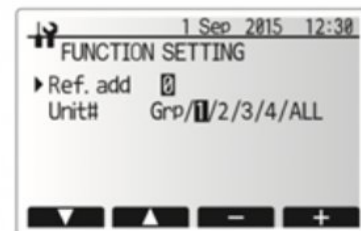
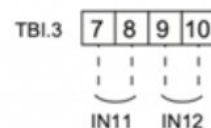
Hot water operation

With electrical heater or DIP SW 1-2 ON → Target temp. : 60°C

Without electrical heater and DIP SW 1-2 OFF → Target temp. : 55°C

Heating operation

Heating is ALWAYS permitted.



Logic of SG-ready signals

Text description of this image

The second part of the communication channel sets the current sensors of the Reduxi Gateway. Select **Auto detect from gateway** for all current sensors.



Current sensors: Auto detect from gateway

Text description of this image

Then configure the heat pump states OFF, ECO, ON and BOOST according to the relay output signals of the Reduxi Gateway. Four combinations are possible:

ON (NORMAL OPERATION)	BOOST (SWITCH-ON COMMAND*2)	ECO (SWITCH-ON RECOMMENDATION*1)	OFF (SWITCH-ON COMMAND)
Relay 1 / IN11 = OFF	Relay 1 / IN11 = ON	Relay 1 / IN11 = ON	Relay 1 / IN11 = OFF
Relay 2 / IN12 = OFF	Relay 2 / IN12 = ON	Relay 2 / IN12 = OFF	Relay 2 / IN12 = ON

Logic of the relay signals combination on the Reduxi Gateway:

Relay signal logic of the Reduxi Gateway

Text description of this image

6.3 Test communication

Click **Test communication** at the lower right, below the communication parameters. It reads the device once and saves nothing.

The **Test communication** button

Text description of this image

The test returns one of two results:

1. Communication works properly

Text description of this image

2. Communication does not work properly

2. Text description of this image

Screenshot of a dialog titled Test communication (close x at the top right). First box: Unable to communicate with device. Second box (red text):

6.4 Advanced settings

Advanced settings are optional. They depend on the needs of the location where the Reduxi Controller is installed. After you finish them, press **Done** at the lower right. Only **Done** creates the device.

1 Basic settings
2 Communication channel
3 Advanced settings

Advanced settings

Do you want to set data saving interval?
☐ No Default: 1 min

Do you want to set reading delay?
☐ No Default: 1000 ms

Do you want to set writing delay?
☐ No Default: 1000 ms

Do you want to set power generation limits and capabilities?
☐ No

Do you want to set power consumption limits and capabilities?
☐ No

Do you want to limit communication with the device to read-only?
☐ No Default: No

Do you want to invert direction for energy import and export?
☐ No Default: No

Do you want to exclude device from summary?
☐ No Default: No

L1 is connected to main feed

L2 is connected to main feed

L3 is connected to main feed

Back
Done

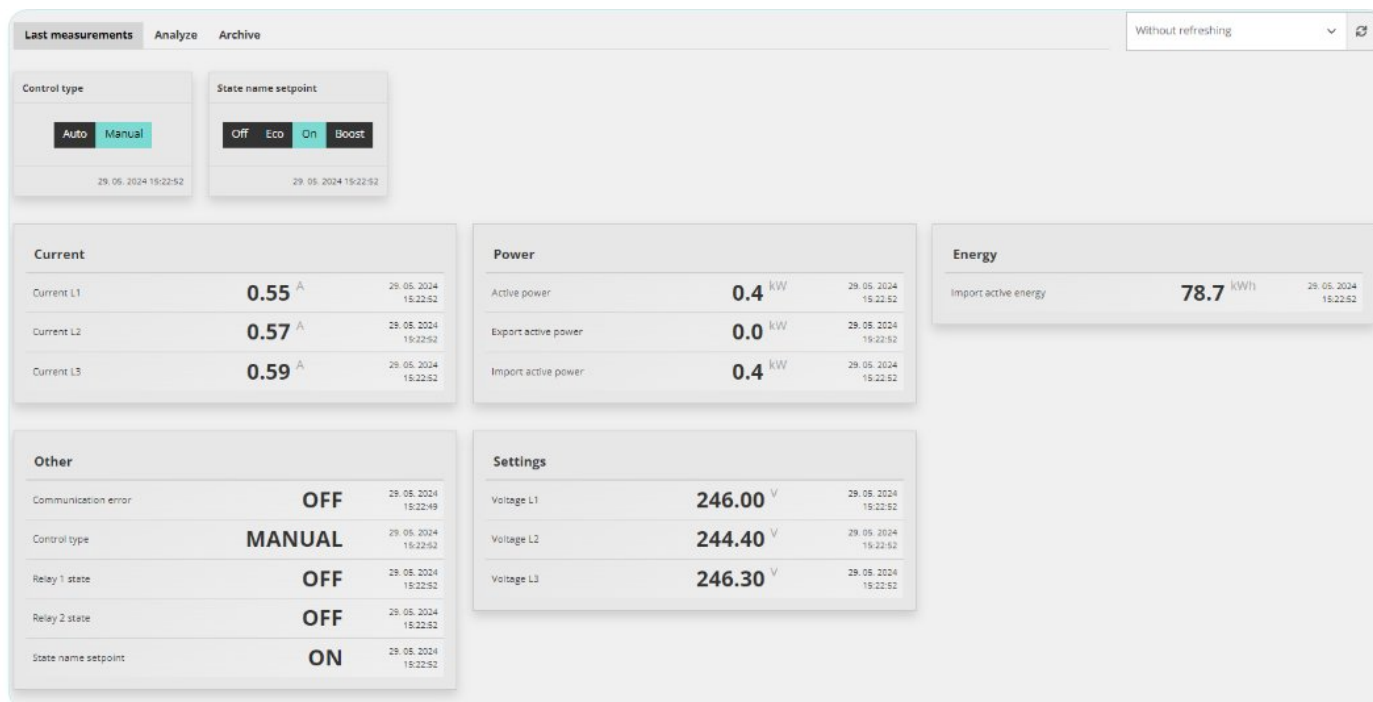
Advanced settings and the **Done** button

Text description of this image

7 Check the readings

7.1 Last measurements

After communication is established, check the values on the device as an additional test. Click the device selection on the home screen and select the new heat pump in the tree structure.



Last measurements of the heat pump

Text description of this image

7.2 Enable control by Reduxi

For control by a strategy, set the management mode to **Automatic**. In manual mode you can test the different states.

After you have added the device and checked the values, inspect and control it in [the Reduxi application](#).

✓ Summary

Preparation (Points 1–4): Prepare the Reduxi Controller, the Reduxi Gateway with 3 CTs, connect the Gateway to the network, wire the relays to the SG-ready contacts (NO) and the CTs to the three phases.

Log in (Point 5): Log in locally to the Reduxi Configurator on the controller.

Add to Reduxi (Point 6): Add an HVAC device, set the Gateway communication, current sensors to Auto detect from gateway and the OFF, ECO, ON, BOOST relay combinations. Run the communication test and press Done.

Go live (Point 7): Check the last measurements. Set the management mode to Automatic for strategy control.

→ Common issues

ISSUE	SOLUTION
Relays do not switch the heat pump state	The Ecodan uses NO contacts. Check the relay contact type and the wiring to the SG-ready contacts (see Point 3).
No current readings	Check that the CTs sit on phases L1, L2 and L3 and that all current sensors are set to Auto detect from gateway (see Point 4 and Point 6).
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 <code>admin</code> is rejected	The password was changed during installation. Ask the installer. The Reduxi account password does not work here.
<code>reduxi.local</code> 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:



How to configure Reduxi Gateway

How to connect and configure the Reduxi Gateway device.



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