

How to use strategy in Reduxi configurator to limit total energy consumption or/and prevent fuse blow

Limit total power consumption and prevent fuse blow with a strategy in the Reduxi Configurator.

⚡ Strategy in the Reduxi Configurator

🔧 Example: three-phase connection, 255 V · 20 A

📏 Needs measurement devices



	A	B	C	D	E
1	Nominal strength [A]	Single phase [A]	Three phase [A]	Single phase [kW]	Three phase [kW]
2	16	22	22	4,0	12,0
3	20	28	28	5,1	15,3
4	25	35	35	6,3	18,9
5	32	45	45	8,1	24,3
6	35	49	49	8,9	26,7
7	40	-	56	-	30,3
8	50		70	-	38,1
9	63		88	-	47,7

Maximum power available on a three-phase connection

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1 Theoretical overview

This overview helps you choose the correct settings in the Reduxi strategy. The calculation below gives the maximum power available on a three-phase connection.

1.1 Calculate the available power

For one phase, use the formula $P = U \times I \times \cos \phi$. P is power, U is voltage and I is current. We set $\cos \phi$ to the constant 1 (ideal consumer).

Example: $255 \text{ V} \times 20 \text{ A} \times 3$ (three phases) = 15,300 W of total power consumption available in the three-phase connection. We usually shorten this to 15.3 kW of total power available.

□	A	B	C	D	E
1	Nominal strength [A]	Single phase [A]	Three phase [A]	Single phase [kW]	Three phase [kW]
2	16	22	22	4,0	12,0
3	20	28	28	5,1	15,3
4	25	35	35	6,3	18,9
5	32	45	45	8,1	24,3
6	35	49	49	8,9	26,7
7	40	-	56	-	30,3
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Example of the basic calculation, used in the next step for the Reduxi Configurator strategy

1.2 Source

The data is taken from »SONDSEE 2016 Navodilo za uporabo stikalne naprave v kombinaciji s števcem električne energije Potrjena PSMEE«.

2 Add the strategy in the Reduxi Configurator

Use the Reduxi strategy to limit total power consumption and/or to prevent fuse blow.

2.1 Prevent fuse blow

In the picture below, the fuse is protected with a maximum current of 30 A on each phase.

Goals

We enter maximum current allowed on each phase to prevent fuse blow

Do you want to limit power?

☐ No

Do you want to prevent fuse failure?

Yes ☒

Max current L1

30	A
----	---

Max current L2

30	A
----	---

Max current L3

30 |  A

Allow short current/power draw over limit when starting new devices

☐ No

Do you want to set data saving interval?

☒ No

Maximum current allowed on each phase to prevent fuse blow

2.2 Limit total power consumption

You can also limit the total power consumption.

Goals

We can limit total power consumption

Do you want to limit power?

Yes ☒

15	kW
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Total power consumption limit

2.3 Limit export of the solar power plant

The Reduxi strategy limits the maximum energy that the solar power plant sends to the grid.

Goals

Limiting how much energy can Solar Power Plant sent to the grid

How much energy you can send to grid?

Yes ☒

kW

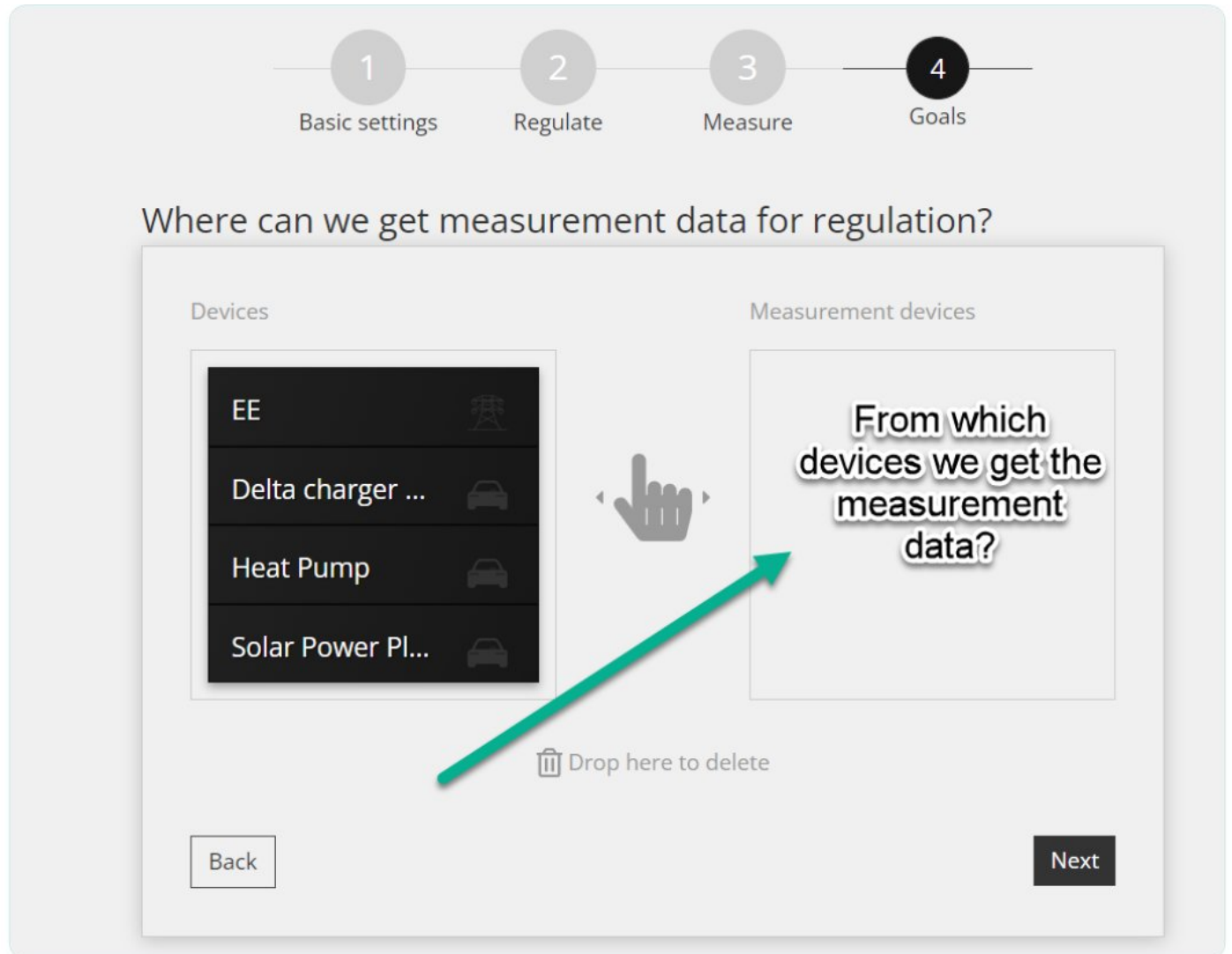
Maximum energy the solar power plant can send to the grid

2.4 Measurement and regulated devices

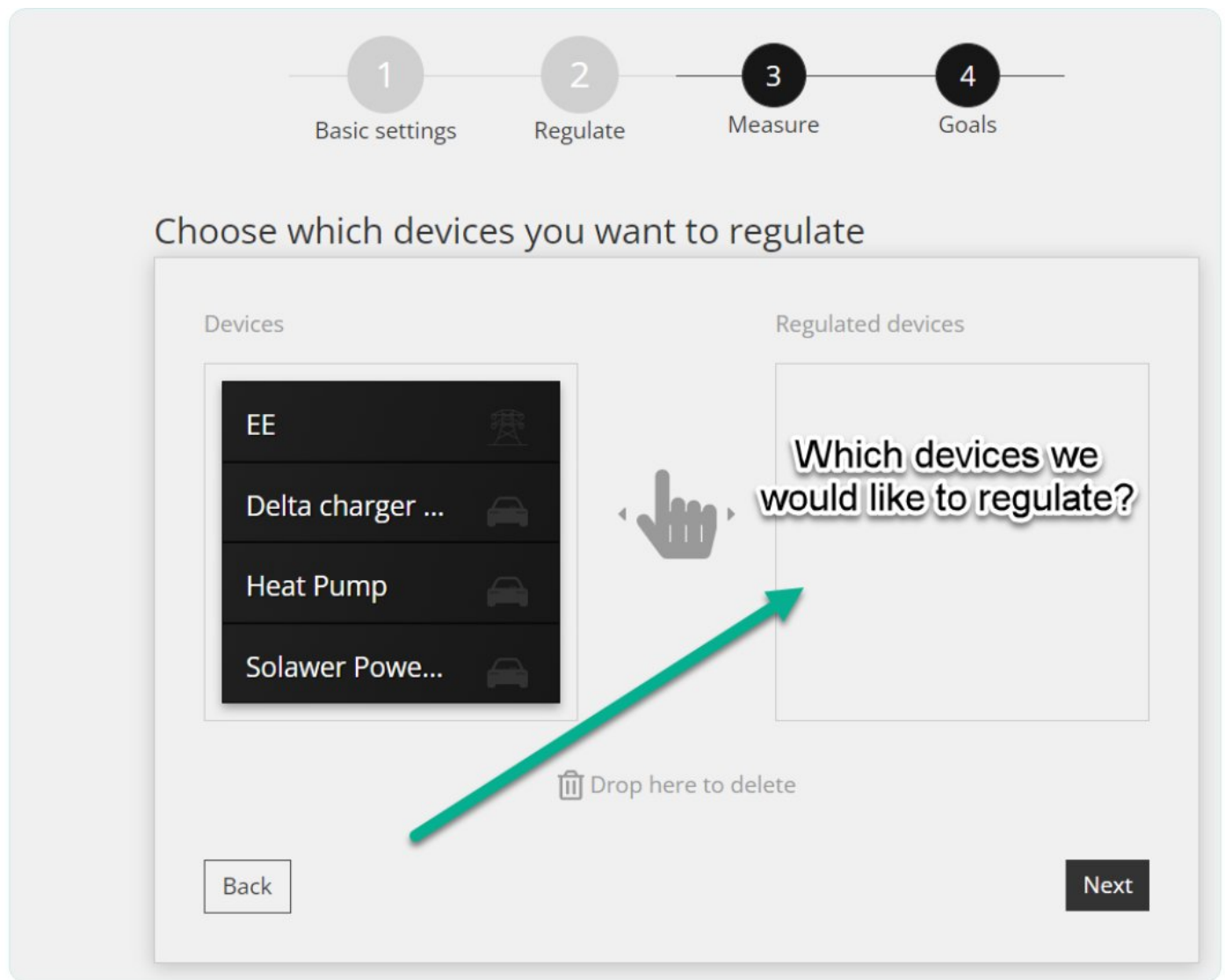


Measurement data is required

The strategy needs enough measurement devices. Based on the measurement data, it regulates the devices you select.



Measurement devices



Regulated devices

3 Example of reading and showing data in the Reduxi Configurator

3.1 Heat pump data

The picture below shows the reading from the heat pump.

Other

Compressor frequency	20.00 Hz	01/05/2023 05:29:29
Compressor state code	1.00	01/05/2023 05:29:29
Compressor state name	ON	01/05/2023 05:29:29
Degree minutes	-117.30 °C min	01/05/2023 05:29:29
Communication error	No	01/05/2023 05:29:24
Hot water supply temp.	49.00 °C	01/05/2023 05:29:29
Outdoor temperature	7.80 °C	01/05/2023 05:29:29
Return temperature	35.80 °C	01/05/2023 05:29:29
Room temperature	23.70 °C	01/05/2023 05:29:29
Supply temperature	38.10 °C	01/05/2023 05:29:29

Heat pump data

3.2 Energy meter reading

The picture below shows the data read from the main electrical meter.

Power			Energy		
Export active power	0.0 kW	01/05/2023 05:30:01	Export active energy	29,114.2 kWh	01/05/2023 05:30:01
Import active power	1.3 kW	01/05/2023 05:30:01	Import active energy	35,553.8 kWh	01/05/2023 05:30:01
Active power	1.3 kW	01/05/2023 05:30:01			
			Other		
			Communication error	No	01/05/2023 05:29:58

Energy meter reading

3.3 The meter does not report data for each phase

The main electrical meter in this example does not report data for each phase. In this case, call your electrical distributor and ask whether they can configure the main electrical meter to measure the data on each phase.

✓ Summary

Theory (Point 1): Calculate the available power per phase with $P = U \times I \times \cos \varphi$. Example: $255 \text{ V} \times 20 \text{ A} \times 3 = 15.3 \text{ kW}$.

Set the limits (Points 2.1–2.3): Set the maximum current per phase, the total power consumption limit and the export limit of the solar power plant.

Select devices (Point 2.4): Select the measurement devices and the regulated devices. The strategy needs enough measurement data.

Check the data (Point 3): Check the heat pump and energy meter readings. If the meter reports no data per phase, ask your electrical distributor.

→ Common issues

ISSUE	SOLUTION
The meter does not report data for each phase	Ask your electrical distributor whether they can configure the main electrical meter to measure the data on each phase (Point 3.3).
The strategy cannot regulate the devices	The strategy needs enough measurement devices. Based on the measurement data, it regulates the devices you select (Point 2.4).



Related articles

Matching guides from the Reduxi knowledge base:



Strategies for Reduxi controller

Overview of the strategies available for the Reduxi controller.



Device setup guides

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



List of supported devices

All devices that work with the Reduxi Controller



Strategies for the Reduxi Controller

Energy manager and other strategies explained