Digital Strom

Digital Strom Energy Cockpit

Installation Guide

Compatible with dSS version 1.19.7 or later

Efficient and Effective Improvement of Energy Balance

Improve your energy balance by smartly using self-generated energy.

This is achieved by integrating your PV system or other energy source into the Digital Strom system. As soon as the generated energy is sufficient, charging stations for electric cars, boilers, or other energy consumers of your choice can be activated – without any manual intervention.

If no energy consumer is available, the generated energy can also be stored fully automatically if a battery is present. This reduces both, your dependence on the electricity provider and the feed-in to the power grid.

With this new tool you can, depending on your configuration and your presence in your home during the day, raise your self-consumption of the energy generated by your PV system from the classical 30% to up to 80%.

Functionality

Only when self-generated energy is available, specifically defined energy consumers are activated. The increased energy consumption is thus fed solely from your own "green" source.

Digital Strom Energy Cockpit detects how much "green" power is being output by the inverter. This allows additional energy consumers to be selectively activated and operated with the additionally available power. Examples include charging stations for electric cars, boilers, washing machines, or dishwashers.

The Digital Strom Energy Cockpit offers a flexible solution in case your energy source temporarily cannot supply power. For instance, if clouds interrupt power generation, a pre-defined shut-off delay will be activated. This prevents short-term switching on and off of your energy consumer.

The Digital Strom system measures the power in the home network and controls the energy consumers. This way, you can track your energy values in the Digital Strom Configurator and the app. Studies have shown that visualizing consumption leads to more conscious use and thus to a reduction in energy consumption by up to 15%.

Prerequisites before installation

You want to install Modbus on your existing Digital Strom system? Ensure before starting the installation of the following points.

- You need to have the **dSS version 1.19.7** or later and
- one of these compatible Modbus (RTU) meters (max. of 6 meters per DS installation):

  - **Hager** - ECR380D
  - **Eastron** - SDM630-Modbus V2
  - **ABB** - B23 212-600
  - **Schneider Electric** - iEM3155

- Make sure to have the **IP address (URL) and password** of the Digital Strom Configurator.

Let's start!

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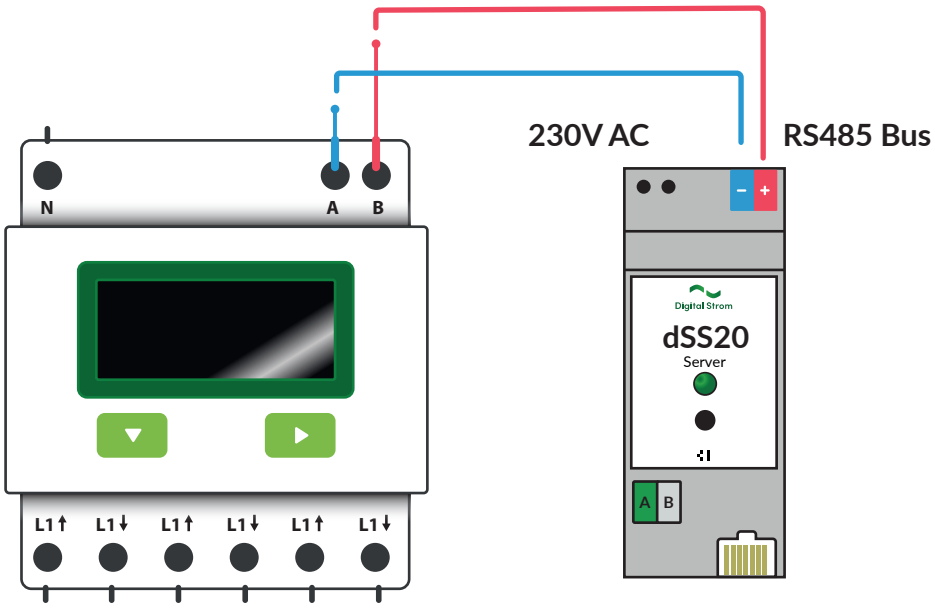
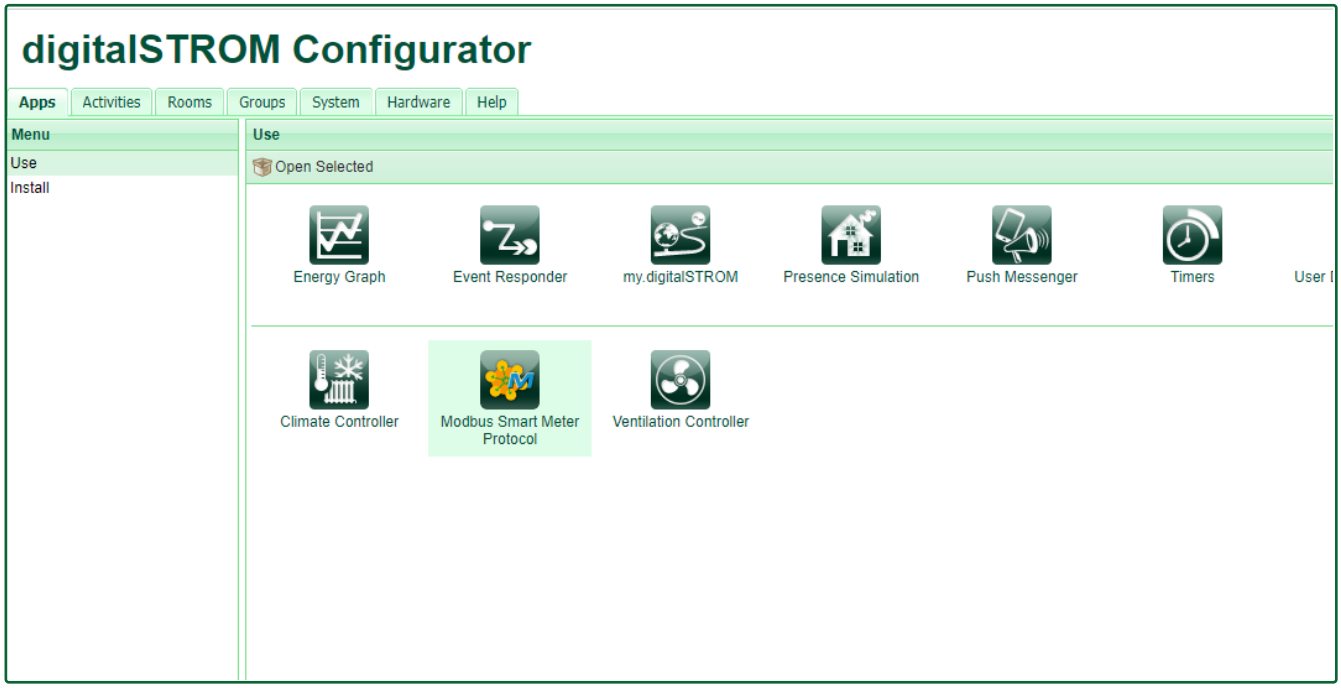
1 - Connect the dSS (RS485 bus connection top right) to the RS485 connection of the Modbus RTU Meter.

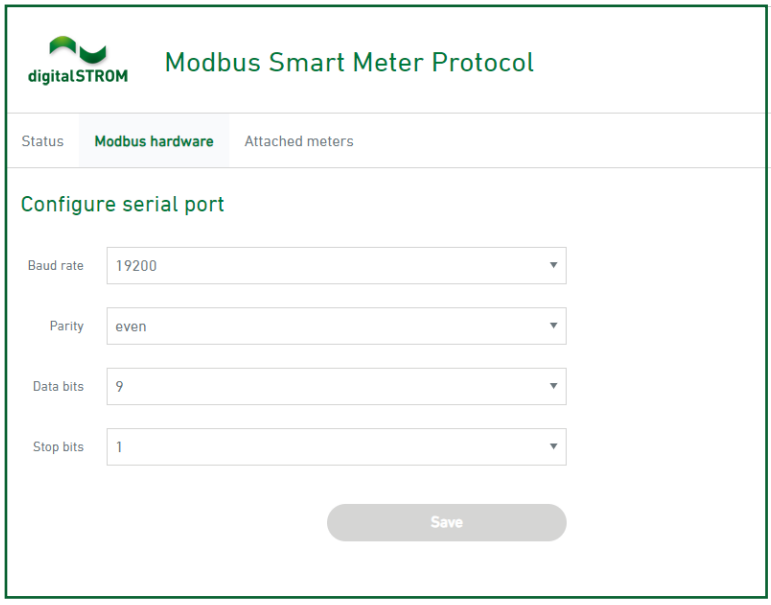
Please ensure the Modbus Meter is connected to the dSS 20/22 based on the schematic below:



2 - Connect to the Digital Strom Configurator and install the 'Modbus Smart Meter Protocol' app.

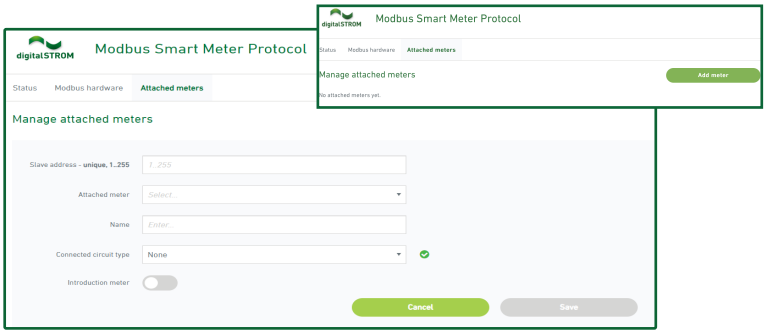


3 - Open the Modbus Smart Meter Protocol app and go to the 'Modbus hardware' tab.
For data exchange via the RS485 interface, the next step is to check the communication parameters in the display of the Modbus RTU meter. The communication parameters for the baud rate, parity, data bits and stop bits must match the parameters in the 'Modbus hardware' tab.
Follow the User Manual of the Modbus Meter to learn how to set it up on the Modbus Meter.

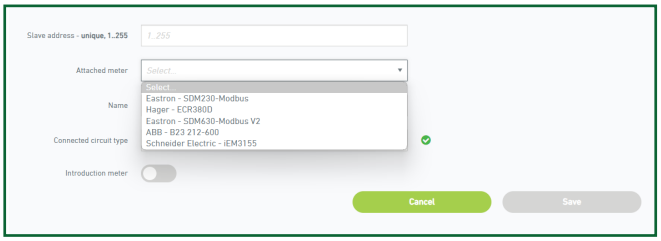


4 - Then go to the 'Attached meters' tab and fill in the following information:

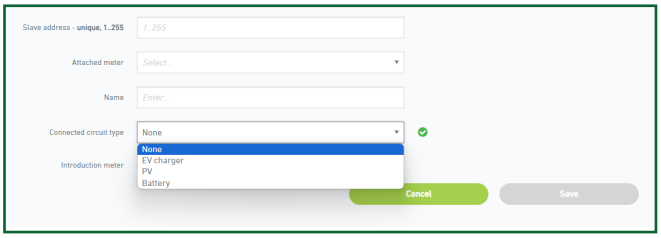
Click on 'Add meter'. First enter the Slave Address of the Modbus RTU Meter that you want to add.
Follow the User Manual of the Modbus Meter how to set it up on the Modbus Meter.



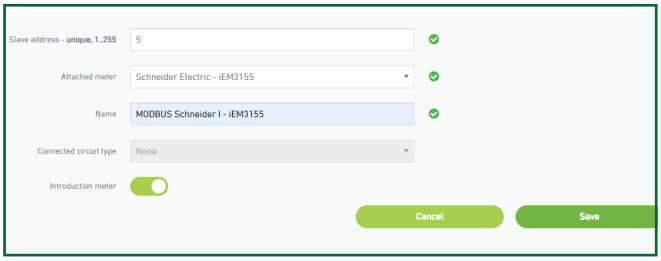
Next, select the type of the Modbus RTU Meter from the list and give it a name.



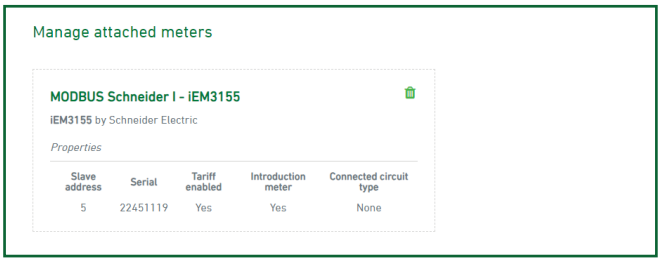
Select the circuit type of the Modbus RTU Meter.



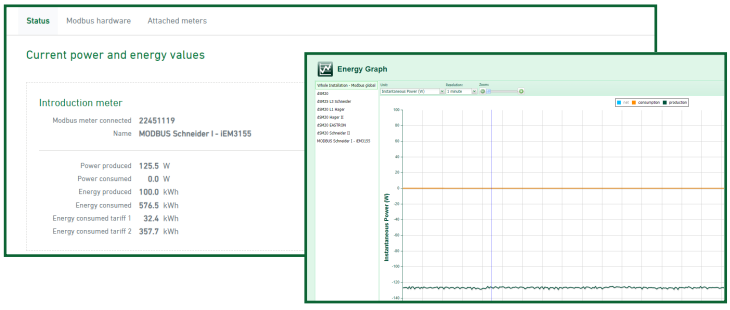
If this Modbus RTU Meter is the main meter that measures the power from and to the grid, activate the switch “Introduction meter”.



Once you have filled in the fields, click on Save, and the Modbus RTU Meter will be displayed. Congratulations, you have finished your configuration!



Now, you can monitor power and energy in the Energy graph app, similar to the dSM's. You can find the energy of the introduction meter as displayed in the chart of the whole installation.



5 - Setting up automation rules

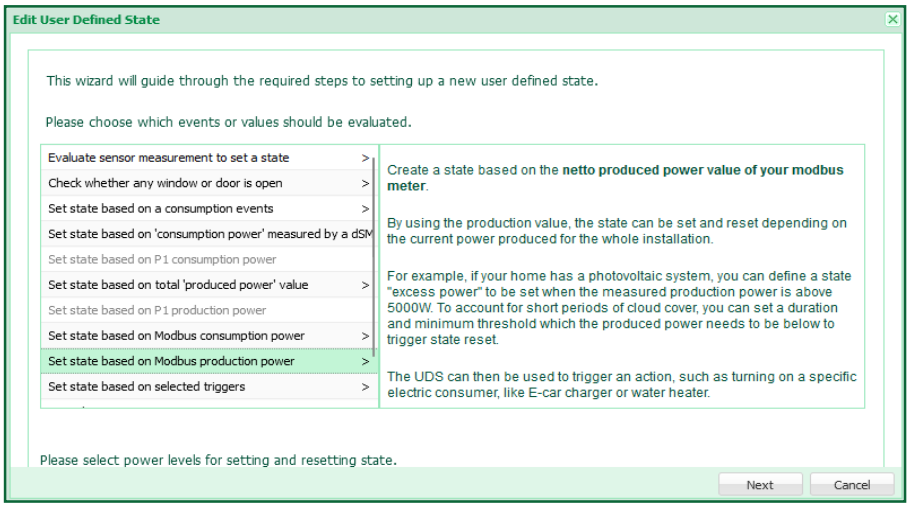
After configuring the dSMs, Modbus RTU meters, or smart meters with P1 interface for measurements (Benelux), you can configure your desired states (app User Defined States in the configurator) based on the currently measured power. With these configured states, you can trigger automation rules in the Scene Responder app. In combination with Digital Strom terminal blocks, it is possible to switch on or off any devices based on the currently produced power.
For devices compatible with Digital Strom, such as washing machines and dryers from V-Zug, Siemens, or Bosch (Home Connect), it is possible, for example, to trigger the start of a pre-configured program when self-generated power is available.

To activate the charging process at the wallbox, a potentialseparated release signal is required - this is realized with the SW-UMR200.

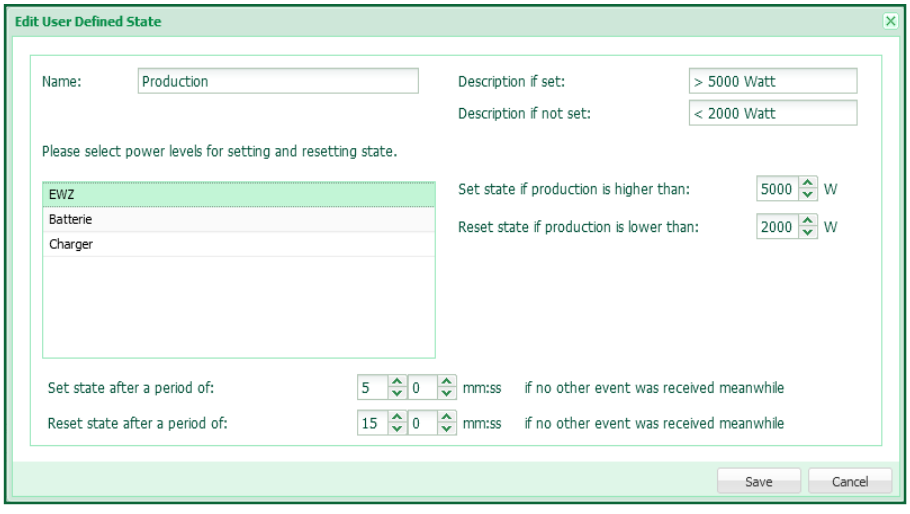
5.1 - User Defined States

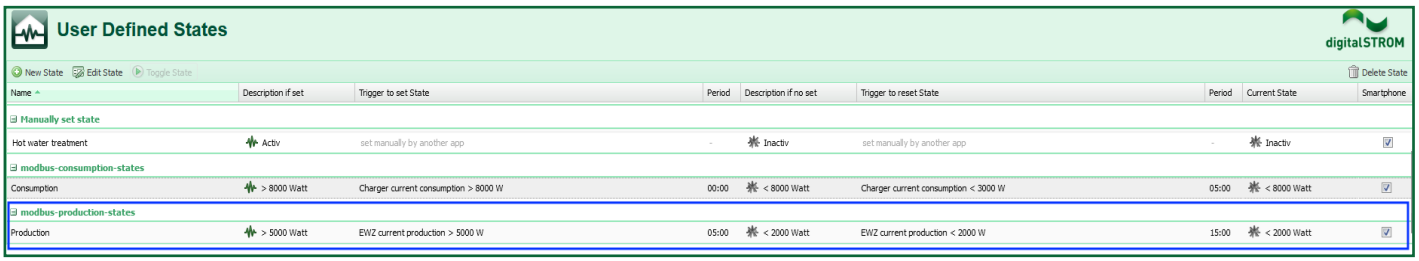
Example 1:

Start the User Defined States app. Create a state based on the netto produced power value of your meter. By using the production value, the state can be set and reset depending on the current power produced for the whole installation.



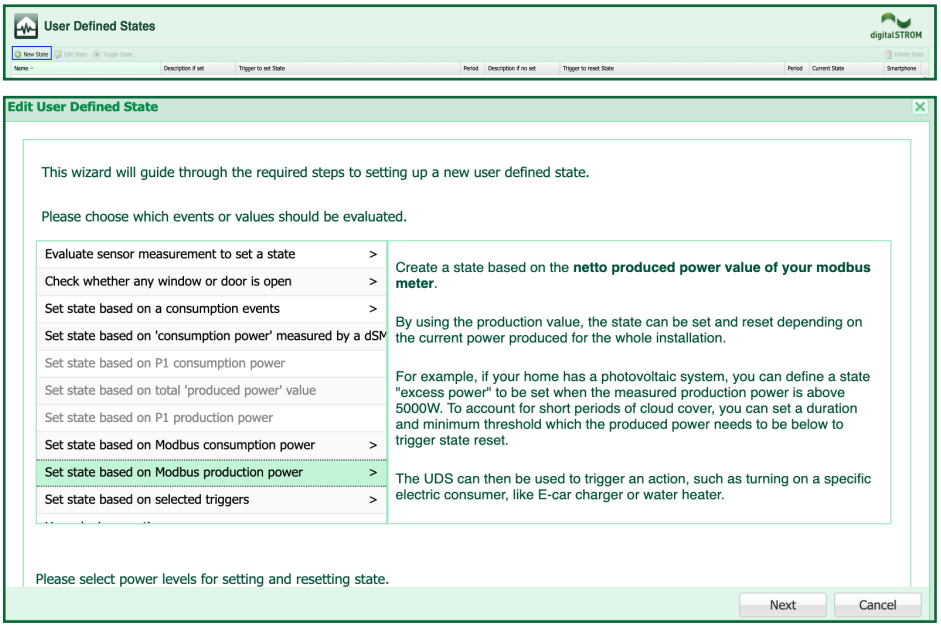
Give the state a name. Give the “if set” (> 5000 Watt) and “if not set” (< 2000 Watt) fields a description. Next, select the meter on the left (EWZ) and enter the power levels for “Set state” (5000W) and “Reset state” (2000W) on the right.
To account for short periods of cloud cover, you can set a duration and minimum threshold which the produced power needs to be below to trigger state reset.



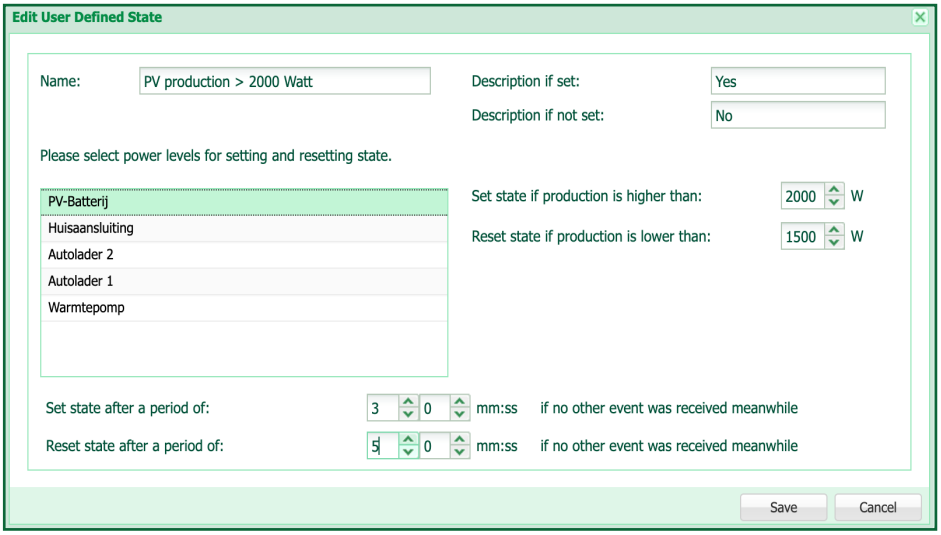


Example 2:

Start the User Defined States app. Create a state based on the netto produced power value of your meter. By using the production value, the state can be set and reset depending on the current power produced for the whole installation.

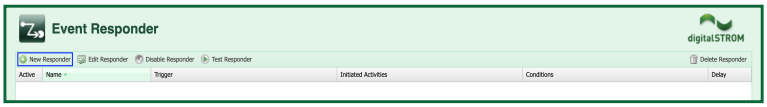


Give the state a name. Give the “if set” (Yes) and “if not set” (No) fields a description.
Next, select the meter on the left (PV-Batterij) and enter the power levels for “Set state” (2000W) and “Reset state” (1500W) on the right. To account for short periods of cloud cover, you can set a duration and minimum threshold which the produced power needs to be below to trigger state reset.

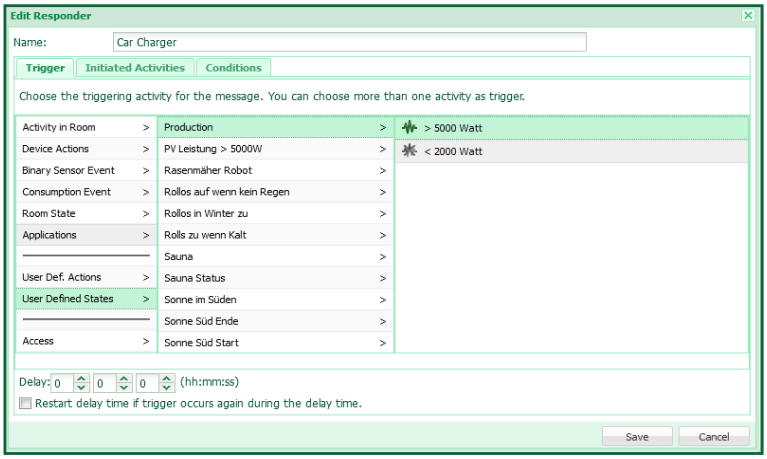


5.2 - Event Responder

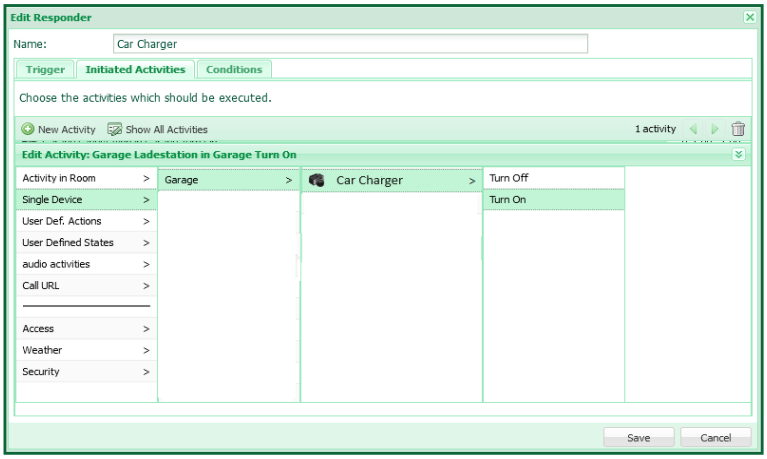
Example 1:
The User Defined State can now be used to trigger an action, such as switching on or off a specific electric consumer, like E-car charger or a boiler. It is also possible to insert conditions, e.g. if the E-car charger may only be switched on when the hot water has already been heated up.
Prioritization of consumers.



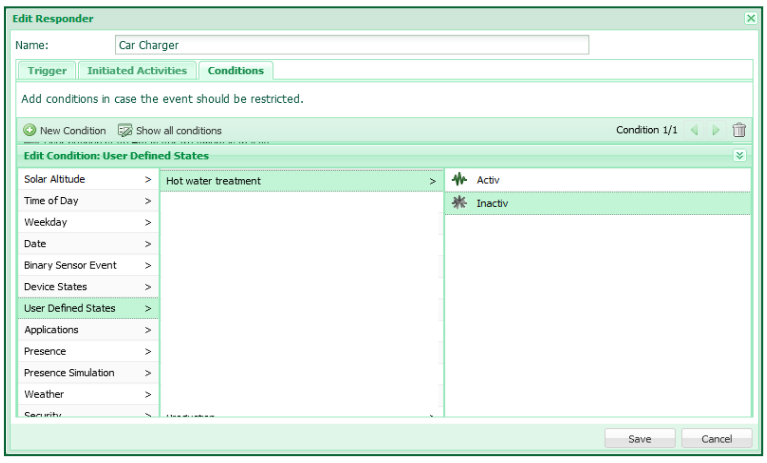
Start the Event Responder app. Create an automation rule (New Responder) to switch consumers on or off.
Give the new responder a name. Next, first select the trigger (User Defined States -> Production -> >5000 Watt) that should start the activity or activities.



In the activities tab, select the activity that is to be executed. In this example, the SW-KL200 terminal (Car Charger) is to be switched on.

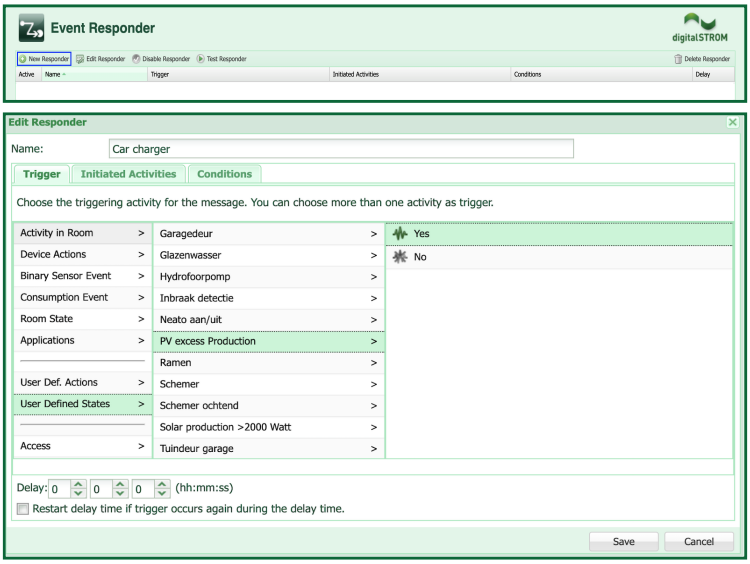


In the conditions tab, select the condition or conditions that must be fulfilled. In this example, the condition User Defined State -> Hot water treatment -> Inactiv is selected. This means that if there is production (>5000 Watt), the car charger is only switched on if the hot water treatment has already complete (boiler).

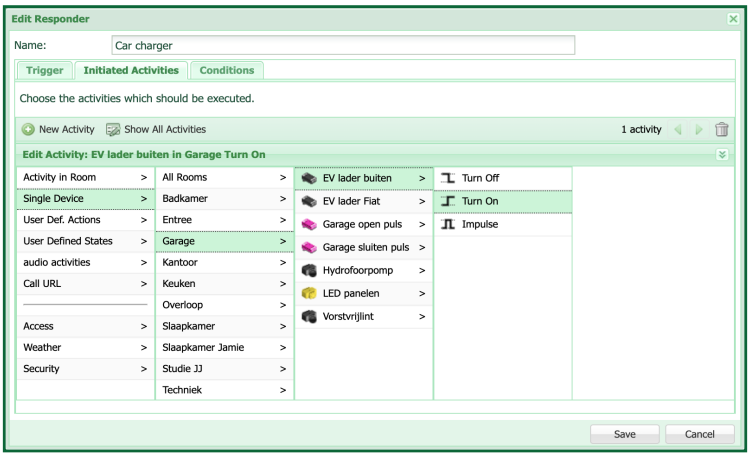


Example 2:

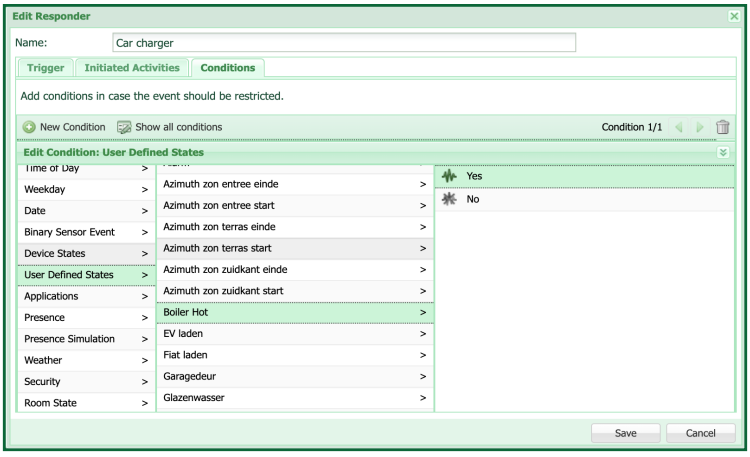
Start the Event Responder app. Create an automation rule (New Responder) to switch consumers on or off.
Give the new responder a name. Next, first select the trigger (User Defined States -> PV excess Production -> Yes) that should start the activity or activities.

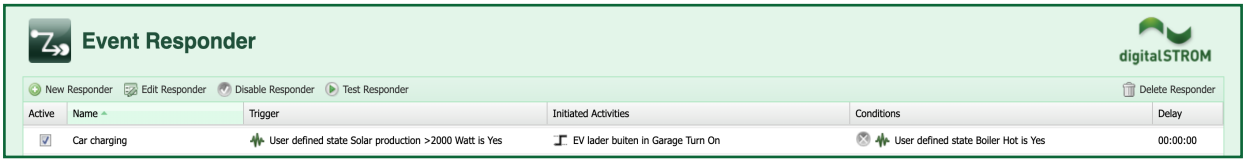


In the activities tab, select the activity that is to be executed. In this example, the SW-UMR200 terminal (EV lader buiten) is to be switched on.

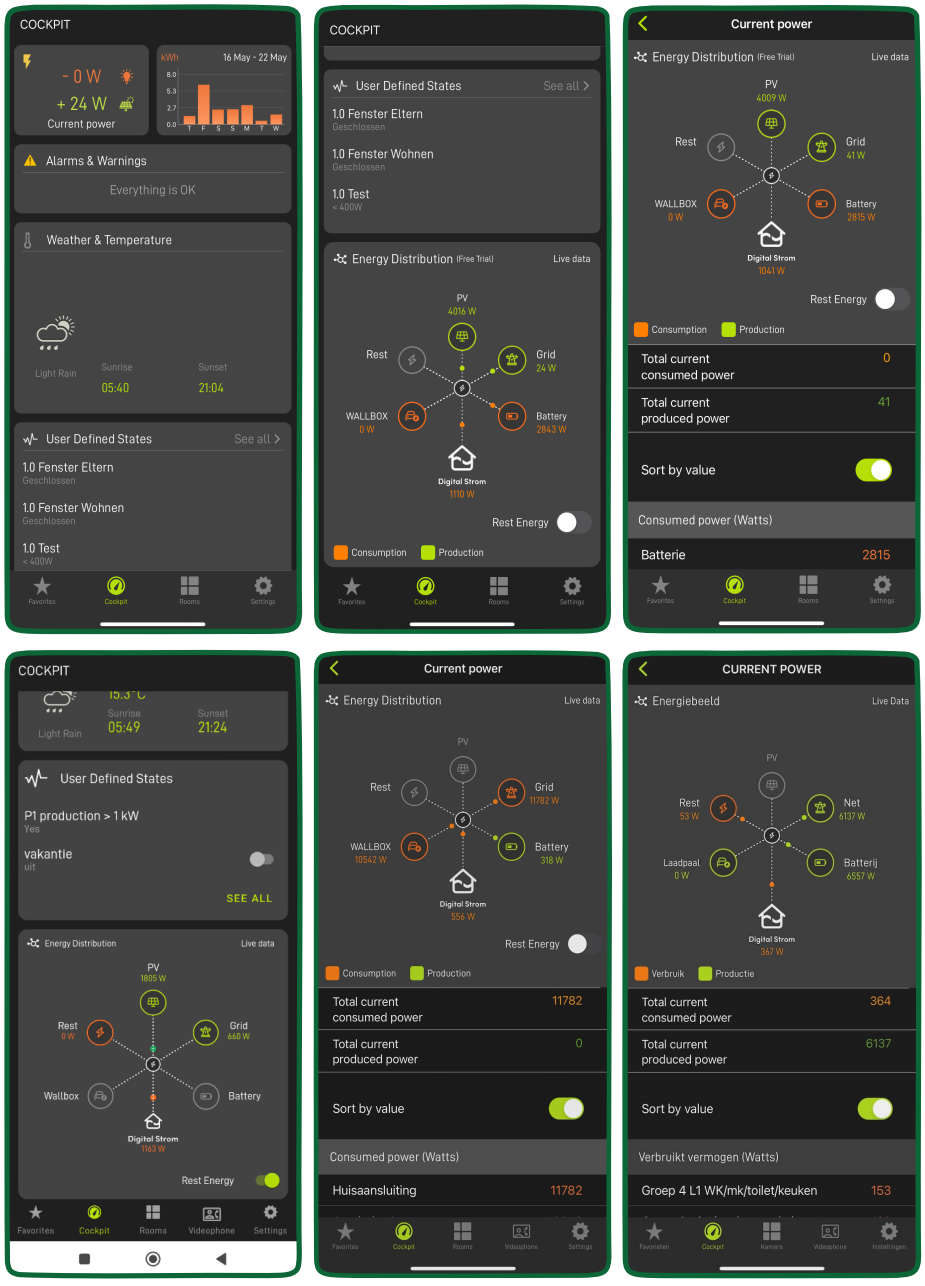


In the conditions tab, select the condition or conditions that must be fulfilled. In this example, the condition User Defined State -> Boiler Hot -> Yes is selected. This means that if there is production (>2000 Watt), the car charger (EV lader buiten) is only switched on if the hot water treatment has already complete (boiler).





6 - DS Energy Cockpit - dS Smart Home App



To access the new features on your smartphone, ensure you've downloaded the latest Digital Strom app update, available on the Google Play and the App Store.