

KNV S Serie

KNV / NIBE

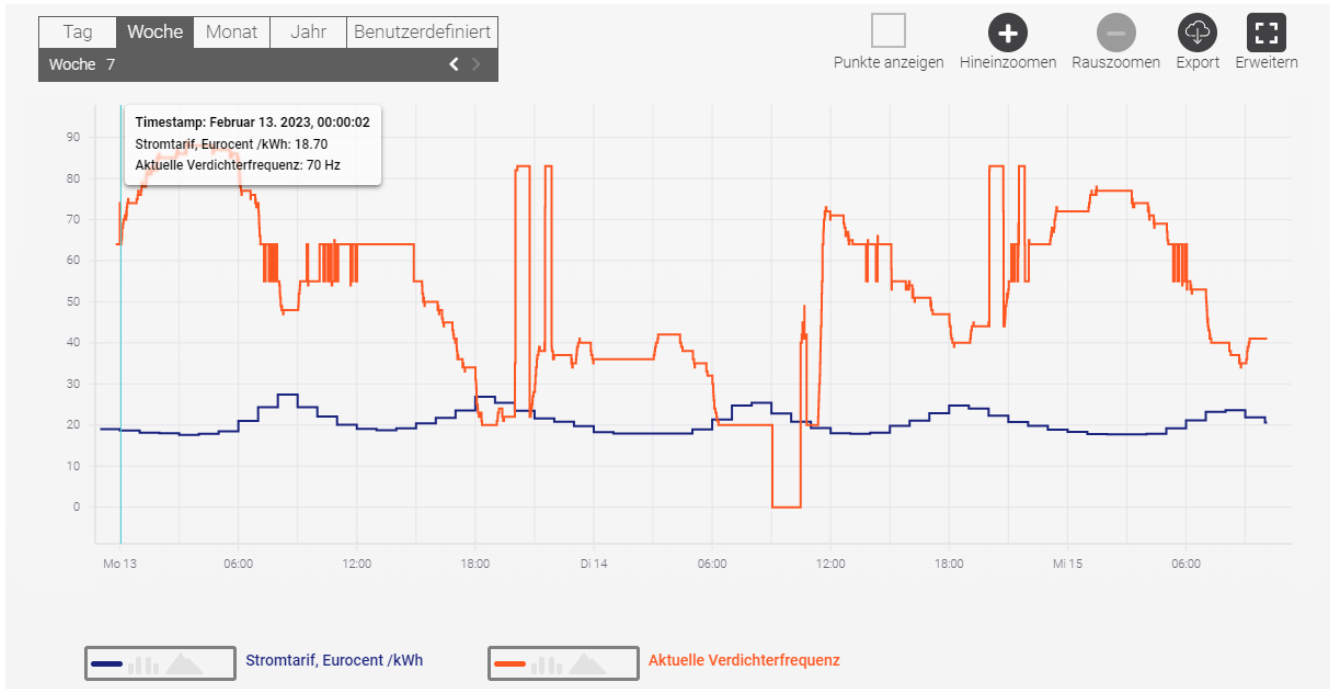


Figure 1: Adaption of heat pump operation according to price signals
(blue = electricity price, orange = current frequency of the heat pump compressor)

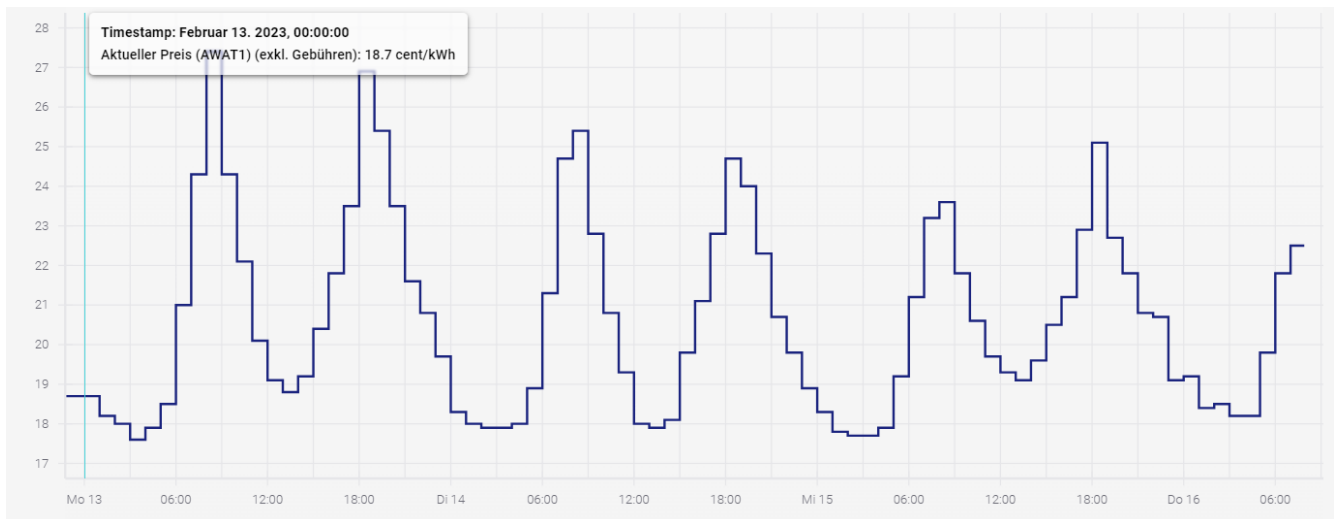


Figure 2: Realtime information on electricity prices

KNV is an Austrian heat pump manufacturer that merged with NIBE AB from Sweden in 2008. Heat pumps from KNV/NIBE have been connected to the Internet since 2012. Since then, thousands of customers have benefited from convenient operation and monitoring of their heat pump via computer, smartphone, or tablet. Further improvement was included in the new generation of heat pumps, the "S-Series".

Technology: myUplink allows for a quick overview of the status of the heat pump via the Internet. If a malfunction occurs, the user will be notified directly via push-note and e-mail. The automated logging of heat pump parameters gives full control of the heat pump, and, with the help of remote monitoring and control, heat pump operation can be optimized and possible faults can be detected or prevented. Furthermore, smart functions such as "Smart Price Adaptation" and "Weather Forecast" are possible in connection with myUplink, which saves costs for the customer and increases the system efficiency in heating and cooling operation.

IoT aspects: The main IoT aspects include a software platform with continuous maintenance, full control of the heating and heat pump system to ensure high operating and living comfort, reduction of electricity costs by intelligently shifting the operating hours during the day, increase of system efficiency by weather forecasts and early detection and elimination of possible malfunctions remotely.

Functionality of the platform: MyUplink is a web application. All web browsers with JavaScript support the use of myUplink. The system and home network are protected through various security measures, including encryption of network traffic and verification of the authenticity of the myUplink server to prevent data theft. The system does not allow external connections that are not initiated by the system itself, so an attacker cannot connect to the system. In addition, the system cannot be affected by malware that is typical for computers, as it does not run a normal desktop operating system. Furthermore, myUplink can be used with various smart home devices such as "Google Assistant", "Amazon Alexa" or "IFTTT".

Main features

Smart-Price-Adaption: Smart-Price-Adaption offers customers the possibility to choose a variable electricity price model. The heat pump retrieves the hourly prices

for the coming 24 h via myUplink and adjusts the operating times to times with low prices, thus saving additional costs. Heating, cooling, pool heating and hot water preparation can be influenced.

Weather control: With weather control and myUplink, the heating and cooling operation of the heat pump is aligned with online weather forecasts. The smart heat pump works proactively and knows when the weather changes at the user's location. This means that weather changes can be considered even more efficiently. In anticipation of a clear frosty night, the heating output is increased in time. If a sunny day is announced, heating operation is reduced, or cooling activated.

Contact information

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FACTS ABOUT THE IoT CASE

IoT category: optimize heat pump operation

Goal: Reducing costs while increasing comfort

Heating capacity: 1,5 – 25 kW

Heat source: geothermal heat, air

Analysis method: visualization of time series

Modelling requirements: Dynamic model, black box model to log heat pump parameters
Integrated in heat pump

Data required: electricity prices, weather data, operational data

Transmission protocol for data: Modbus TCP/IP

Quality-of-Service: real-time

Technology Readiness Level: 9

Link to webpage: <https://www.knv.at/>