www.energizedanalytics.com

SANDY FORECAST SERVICE:

Intelligent Preheating

SANDY
Energized Analytics

An innovation of EnBW

"Your customer profits from an energy efficient and more comfortable heating control."

WE TEACH YOUR HEATING SYSTEM TO BE SELF-LEARNING

Digital controllable heating valves are present day technological standard and are mostly controlled manually or rigidly scheduled. **"Intelligent Preheating"** taps in the full potential of digitalization and transforms your system to a custom and self-learning one.

In contrast to conventional wireless radiator heads different parameters like room size and weather are taken into account to reach the desired temperature by a default time. This way your customer profits from an energy efficient and more comfortable heating control.

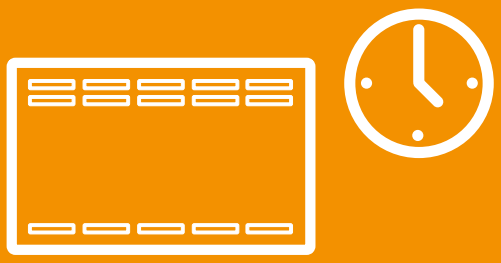
"Intelligent Preheating" is based on the established SANDY Forecast Service, which are simple, fast, reasonably priced and are easy to integrate into existing systems because the cloud services are reachable with a standard interface.

PRODUCT ADVANTAGES IN DETAIL

The **"Intelligent Preheating"** algorithms help to achieve the requested room temperature by a certain time, while increasing energy efficiency and reducing heating costs. The adjustment of the heating is really easy and comfortable and your costumer only names a time at which the room should be heated.

The used machine learning algorithms are self-learning and acquire heating properties of each room individually. Self-learning means an automatic and continuous determination of the optimal preheating moment. Furthermore the heating control adapts dynamically to behavior changes or structural changes for each room individually. Enough for this purpose is information about room temperatures and heating patterns –no processing of user-sensitive data involved.

The integration of standard interfaces in existing systems keeps your technical expenses to a minimum. Your heating system product reaches the next level from digital to an intelligent and efficient system without extensive developmental costs.



“The setting easy and comfortable, because the customer only has to specify when he would like to the room to be warm.”

TARGET AUDIENCE

- Heating valve producers, smart home companies, heating technology producers, energy management system providers, energy contractors, et al.

SURPLUS VALUE FOR YOUR CUSTOMER

- customers receive an intelligent and attractive smart heating control system
- heat is used in a contemporary and automatic way
- reduction of energy consumption and costs, since rooms are preheated in line and in time on demand
- preheating moment is continually matched through automatic learning
- explicit increase of comfort by heating single rooms at the exactly right moment instead of a time consuming way by users
- Control in the most simple way – customer provides the default time a room should have reached the desired temperature.

OVERVALUE FOR YOUR COMPANY

"Optimal availability, automatic updates and no maintenance expense thanks to the software as a service."

- intelligent and innovative extension of your products
- increase of customer satisfaction and loyalty
- fast, easy and cost-efficient system integration
- all benefits of "software as a service", i.e. high availability, automatic updates, no maintenance
- no utilization of user sensitive data necessary
- flexible scaling with growing customer base

USER SCENARIO

A customer would like to enter a room at 7 a.m. and have it preheated to 21 °C.

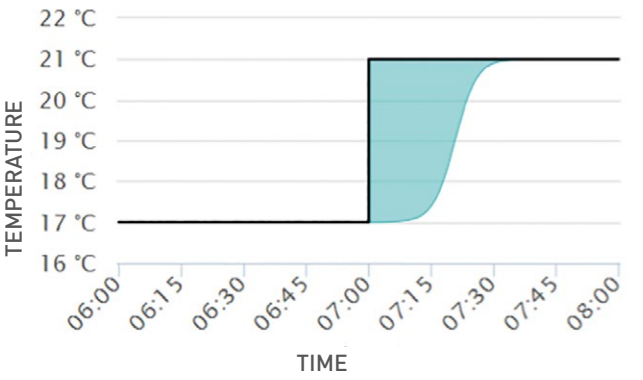
Heating moment to late or to early

A configured smart home system or a thermostat opens and close heating valves at certain times. In this scenario (fig. "to late") the target temperature for 7 a.m. is elevated from a nighttime low of 17 °C to a pleasant 21 °C.

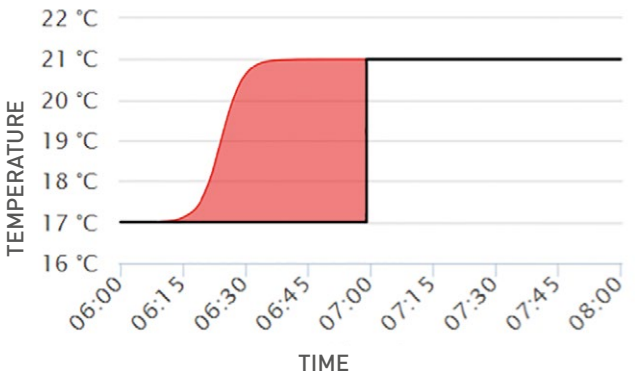
The heating valve opens and the room begins to warm up. Resulting in having not reached the target temperature of 21 °C at 7 a.m., resulting in a to cool room at 7 a.m..

Following this experience the customer adjusts the heating control and starts heating at 6:20 a.m (fig. "to early") to reach the target temperature. However, in this case he started heating up the room to early and the provided warmth is not being used before 7 a.m..

The customer could try and approach the optimal preheating moment by trial and error. However this procedure is time consuming and impossible to achieve in larger environments like offices or large building complexes with many rooms.



too late



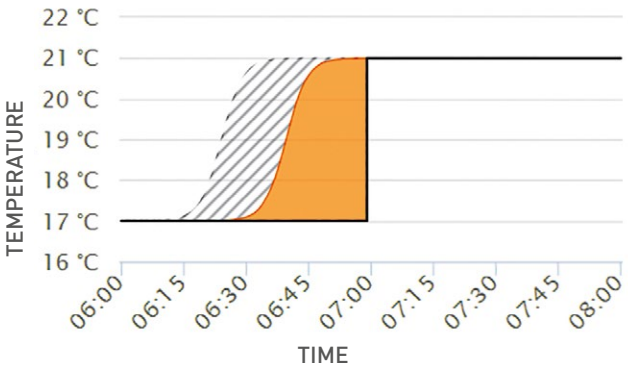
too early

Optimal heating moment through intelligent preheating

In this case (fig. "exactly right") the optimal preheating moment was determined by SANDY based on data collected by the radiator controller head.

"The optimal preheating time is computed by SANDY on the basis of historic data from the thermostatic valves."

The user just entered the target temperature of 21 °C at 7 a.m. into the system and the heat was adapted to the room by utilizing the learned room parameters individually. This way the heating control started at an optimal time and reached the target temperature at exactly the right time, without wasting any energy.



exactly

This case underlines the potential for optimization of a heating control infused with the machine learned room specific preheating system.

TECHNICAL DETAILS

- cloud- service
- communicates over RESTful API
- Input:
  - sensor thermostat data detects live actual and target temperature
  - live operation: planed target temperature
- Output:
  - live operation: individual heating moment is recommended
  - in offline operation: heating model
- Security:
  - encrypted data transfer with HTTPS
  - individual authorization API-key
  - robust operation in Microsoft Azure Cloud
- Requirements:
  - smart home installation on customer side
  - programmable thermostatic valves

"Individual recommendations for heating time make smart home systems even smarter"

A SOLUTION WITH MANY POSSIBILITIES

The used service logic behind our **"Intelligent Preheating"** can be used in modified form for other operations i.e. air conditioning or optimizing of cooling cycles. Furthermore a customization of client specific interfaces is possible.

WE ARE HAPPY TO HELP YOU!

Profit from our innovative SANDY-Concept and contact us today.
We are looking forward to your request.

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"We look forward
to your inquiry!"

SANDY TURNS DATA INTO VALUES

SANDY Energized Analytics supplies companies with innovative, cloud-based analytics as a service solution. We deliver realtime data based decision-making recommendations to our customers for the continuous increase of the value of their products, services and processes – quick, precise and safe. Our young dynamic team unites the functional competence from IT expertise and business model development and shares the passion to discover great things in small things. From complete solutions to an individual Carefree Service Package, we have the perfect answer to your digital challenge – for your decisive competitive edge.

New perspectives for your business

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