

SIEMENS



Saving Energy with Synco living™

Enhanced quality of living made easy

Modernizing and Saving Energy with Synco living

- Computerized simulation and presentation of energy savings potential through the use of the Synco living Home Automation System in cooperation with **Hochschule Lucerne – Technology & Architecture**
- Definition of house with the relevant general conditions:
 - Single-family home with 5 ½ rooms, heavy construction, located in a housing estate in Zurich, Switzerland
 - Average U-value: 0.3 W/m²K
 - Window proportion: 30%
 - No fireplace and no ventilation system
- Use of building simulation program "Thermal room simulation with IDA"
- Differentiation between thermal and electrical energy consumption



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Based on 3 basic models, the following variants have been defined:

Model 1

- Outside temperature (OT)-compensated heat source
- Room temperature: 21 °C
- **Without** room temperature control
- Without night setback

Model 2

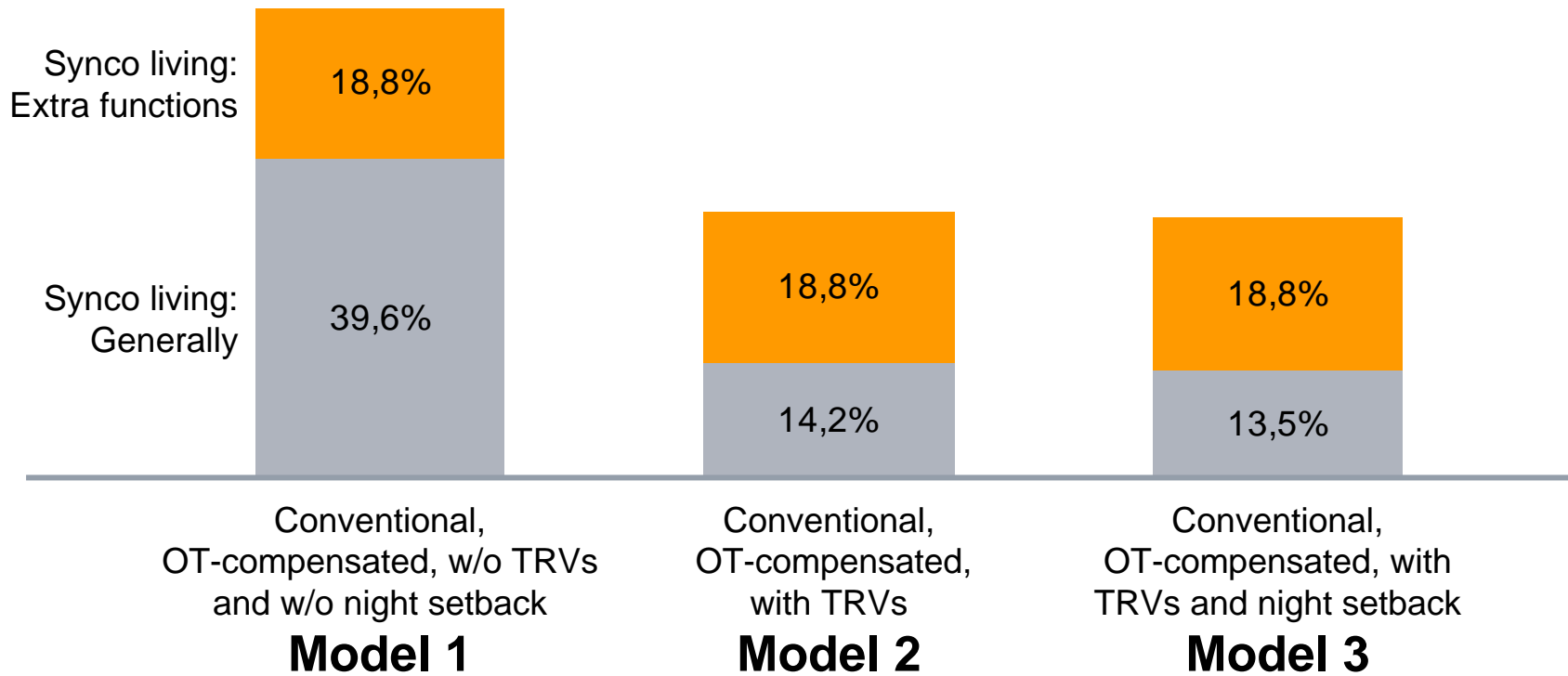
- Outside temperature-compensated heat source
- Room temperature: 21 °C
- **With** thermostatic radiator valves (TRVs)
- Without night setback

Model 3

- Outside temperature-compensated heat source
- Room temperature: 21 °C
- **With** thermostatic radiator valves
- With **night setback** via heat generation

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Energy savings potential with Synco living compared with conventional heat generation and heat distribution



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Energy savings resulting from user-specific Synco living extra functions are subdivided as follows:

Blinds

- Reduction of building envelope heat losses by lowering the blinds every day

Window airing

- Discontinuation of room temperature control when open windows are automatically detected

Holidays program winter

- Reduction of temperatures during winter holidays



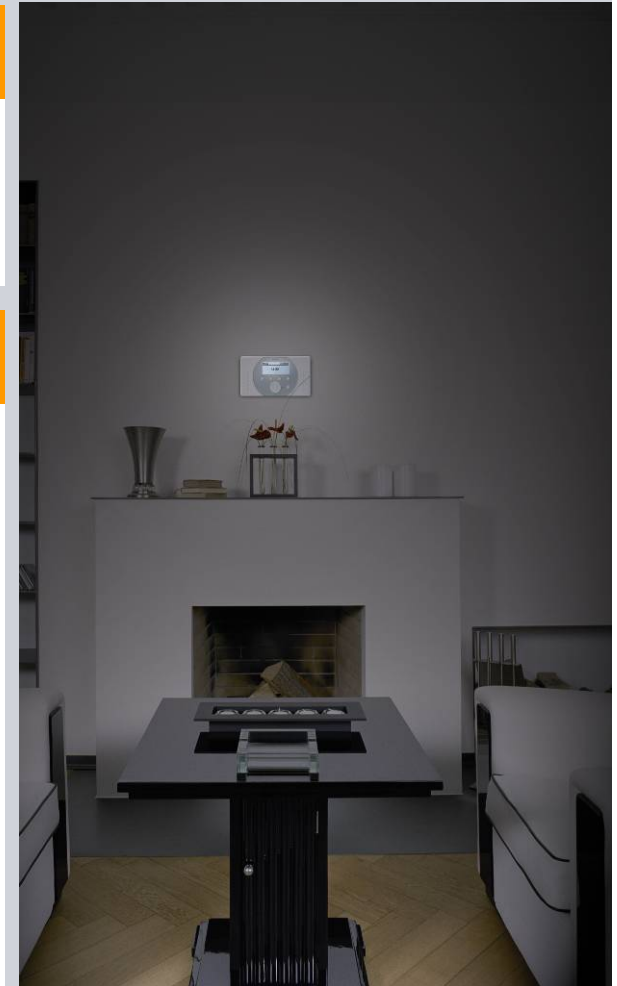
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Absence

- Reduction of room temperature during short periods of absence

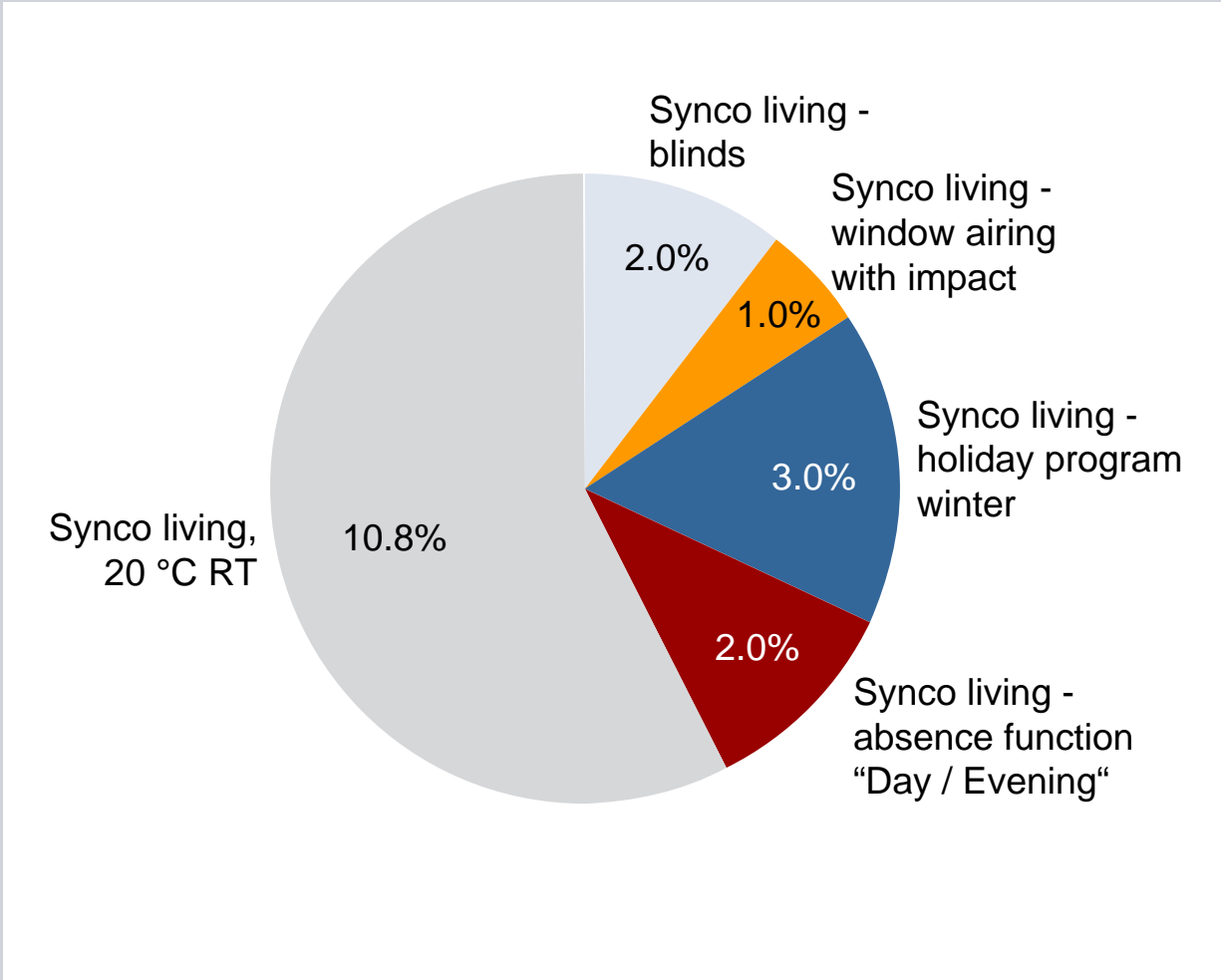
Room temperature reduction to 20 °C

- To ensure a minimum room temperature of 20 °C when using TRVs, 21 °C must be set. This means that with the usual P-band of 2 K, the RT can vary between 20 and 22 °C
- When using Synco living, the RT can be maintained within a band of 0.1 K



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Energy savings potential thanks to Synco living extra functions = **ca. 18.8%**



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Conclusion

- Compared with conventional heat distribution, Synco living offers **energy savings** of between **13.5 and 39.6%**. These savings result from **automatic functions**, such as individual room control, night setback, ascertainment of heat request, and excellent control performance
- **User-dependent functions**, such as blind control, detection of open windows, holiday program and absence function, improve the energy savings potential by an **additional 8.0%**
- If the user would like to have a **minimum room temperature of 20 °C** guaranteed, Synco living offers **additional energy savings of 10.8%** in comparison with conventional TRVs

