

Sleep-Mode for Beverage Coolers and Vending Machines Smart Controls Reduce Energy Costs by 15 - 45%

13 August 2015

Definition

Smart controls, also called energy management systems or devices, are integrated in beverage coolers and vending machines. They learn the opening hours of the shop where they are located and put the cabinet into sleep-mode in the off-hours. The cooler automatically switches back on in time to pull down beverage temperatures for the coming day, or it gets triggered to switch back on by the first door opening.

Smart controls are second-best improvement option after using merchandisers with doors

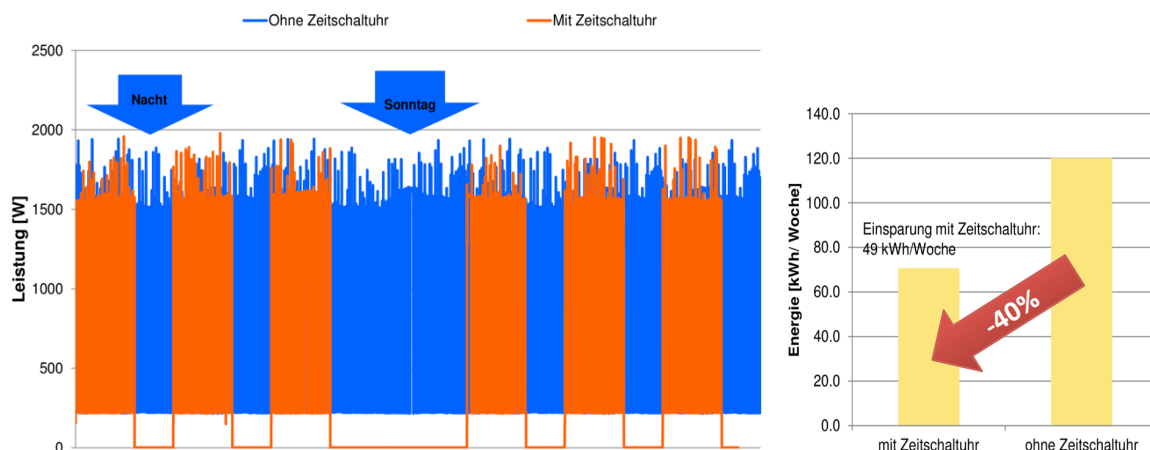
The European Commission Joint Research Centre (JRC), in its preparatory study update report on commercial refrigeration, says that smart controls are the second most effective improvement option to achieve energy savings in beverage coolers and vending machines. The saving potential is estimated to be 26% on average and up to 45% in the best case. The first most effective improvement option is using merchandisers with doors instead of open cabinets (yielding a reduction in energy costs by 40 – 50% according to JRC’s report).

Quote from JRC’s report: “Smart sensors/energy management devices (...) can reduce the energy consumption up to 45% by allowing the temperature inside the cooler to rise (between 7°C to 14°C) during periods when the outlet is closed or rarely used, and by maintaining the working temperature (between 0°C and 7°C) during the active hours. This is only applicable to can/bottle machines with no food safety temperature requirements. For perishable items like sandwiches, the temperature cannot rise above 10°C for more than half an hour. For such machines, only controlling energy-consuming components that do not affect the working temperature could save energy, like switching off lights, or reducing the speed/power of compressor and fans.” (5.5.4 Electronic control, p. 54)

However, some beverage companies made the experience that energy savings through EMD are lower, namely 15% on average and up to 25% in the best case (based on 12 hours business-mode and 12 hours standby-mode per day, with a pull-down-phase of maximum 3 hours before business-mode).

Field measurement in Switzerland shows 40% reduction in energy costs

A beverage cooler in a canteen was measured in December 2014 (data was provided to Topten by the operator of the canteen anonymously). The measurement showed that energy consumption can be reduced from 120 kWh per week to 71 kWh per week when the cooler is shut off over night and on Sunday.



Manufacturers that offer beverage coolers with smart controls

Pretty much every cooler can be equipped with a smart control. The following manufacturers have already done it:

- Frigoglass
- Klimasan
- Liebherr
- Ugur
- and many more... (contact us if your company does!)

Beverage companies that already use smart controls

- Coca-Cola
- Heineken
- and many more... (contact us if your company does!)

Examples of smart controls

The following control devices allow smart energy management according to the manufacturers. The products were not tested or evaluated by Topten. Therefore the list is not a recommendation. Contact us if your company offers similar products.

- Danfoss ERC 112: <http://products.danfoss.com/productrange/documents/refrigeration/electronic-controls/electronic-refrigeration-temperature-controls/erc-ekc-electronic-refrigeration-controls/erc-112/>
- Eliwell EWPlus 974: <http://www.eliwell.it/product.aspx?id=13851&LangType=2057>
- Elstat EMS 55: <http://www.elstatgroup.com/industry-solutions/refrigerator-cooler-manufacturers/>

References

- [1] Ecodesign for Commercial Refrigeration, Preparatory study update published report, August 2014 by the European Commission Joint Research Centre (JRC): http://susproc.jrc.ec.europa.eu/comrefrig/docs/COMM_REFRIG_PUBLISHED_BKG_DOC%20-%202014%20August%2026.pdf

Contact :

Eva Geilinger, gewerbe@topten.ch, 0041 44 362 92 38

Info :

www.topten.eu/pro-cold

www.topten.eu/rebates (Rebate Programme in Switzerland)

This ProCold project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 649293.



The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.