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Review of the CO_2 impact model of Belimo field devices

On Request of Belimo Automation AG, Hinwil, Switzerland, the HSLU carried out a critical review of the proposed "CO_2 impact model of Belimo field devices" and provided various inputs to improve the model.

The current model, even though based on many assumptions, represents a reasonable model for the estimation of the CO_2 impact of a field-device over a lifecycle of 15 years (conservative assumption), including the phases of 1) raw material generation, 2) manufacturing, 3) transportation, 4) operation and standby energy, 5) energy-reduction in the HVAC-system and 6) recycling.

In the review a particular focus was put on the modelling of the energy-reduction of a field-device in the HVAC-system. The used "proxy-system", a ventilation system with one air-handling unit and 25 VAV-boxes, including respective controls, represents a typical HVAC application and is suited for this model.
Also, the reference to the standard ISO 52120-1:2022 makes good sense as it includes accepted assumptions on typical savings in HVAC systems by applying Building Automation and Controls Systems (BACS).

We can herewith confirm that the calculated CO_2 net savings provided by the model represent a fair and credible estimation of the CO_2 impact of a Belimo field device.

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