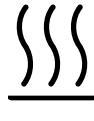


Application guide

Condensation protection in old historic buildings

Danfoss Heating



Application

Humidity and room temperatures are critical factors in old historic buildings like churches, castles, manors, museums and wine cellars. If the relative humidity gets too high it can be damaging for artworks, murals, organs and wine.

To avoid damages to inventory in old historic buildings Danfoss Heating recommends a control solution that in addition eliminates problems with mould and ensures a comfortable and preservative climate for both organs, artworks and people.

We recommend

- A230 application key (use subtype A230.3)
- ECL Comfort 210, 296 or 310 controller
- ECA 31 remote control
- ECL Portal (only ECL 296 / 310)
- AME, AMV, AMB actuators
- ESM temperature sensors



ECL Comfort 310 controller with application key

The A230 application key is a so-called four-in-one solution offering 1) temperature control in heating installations, 2) temperature control in cooling installations 3) control against too high humidity and 4) a floor (screed) drying program - dependent on the selected subtype of the key.

The ECL application key A230 contains 4 subtypes, applicable in ECL Comfort 210, 296 and 310:

- A230.1: Temperature control in heating installations. Optional compensation from wind.
- A230.2: Temperature control in cooling installations. Optional external signal (0 - 10 V) for temperature setpoint.
- A230.3: Condensation protection (RH signal from ECA 31 or as 0-10 V signal).
- A230.4: Temperature control in heating installations. Optional external signal (0 - 10 V) for flow temperature setpoint or pressure measuring. Additional temperature monitoring included.
- By using the ECA 32 or ECA 35 extension module to the ECL Comfort 310 controller, the actuator for the control valve can be alternatively controlled via a 0 - 10 V output.

The A230 application key also contains a floor (screed) drying program for the subtypes A230.1, A230.3 and A230.4. The elapse of the program can be saved for later documentation, if necessary.

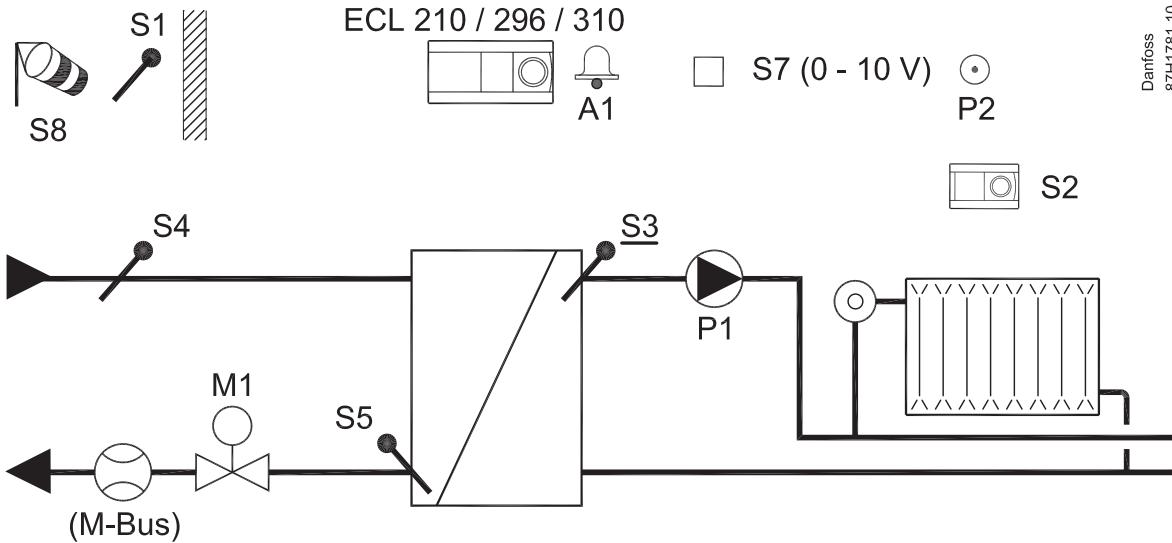
Up to two remote control units, ECA 30 / 31, can be connected to one ECL controller to control the ECL controller remotely.

The ECL Comfort 296 and 310 controllers can be connected to the Internet-based ECL Portal for remote monitoring and control. In addition, a smartphone app is available for the ECL Portal.

The ECL Portal is an effective tool for the service personnel to streamline service, commissioning, maintenance and control tasks. Also, alarm messages can be sent directly to users via e-mails.

The ECL Portal is an internet-based SCADA solution that requires no local server. It automatically configures its user interface and functionality to support the application in the controller.

All communication interfaces related to the use of the ECL Portal and ECL Comfort 296 / 310 are encrypted (SSL/TLS certificates ([https](https://)) on the ECL Portal web pages and AES 128-bit encryption in the communication between the ECL Comfort 296 / 310 and ECL Portal), preventing unauthorized persons to tap into the data communication and steal or manipulate settings and personal data.

Application example: A230.3 Condensation protection

*Indirectly connected heating system. Optional wind compensation and protection against condensation in thermal heavy buildings.
S2: ECA 31 contains room temperature sensor and humidity sensor and sends the RH signal to the ECL.*

Additional accessories and options**AMV and AME actuators**

AMV and AME actuators are primarily designed to operate valves in the respond to the demand of a controller in e.g. district heating, district cooling and HVAC systems.

They can be controlled by electronic controllers with modulating (0 - 10 V) or 3-point control output.

Actuators have built-in thermic and overload protection of the electro motor. This radically reduces the risk of operational failure in either the valve or the system as a whole.

Other features:

- High-temperature resistance
- Easy mechanical and electrical connection
- Robust design

AMV and AME actuators are mostly used with VS, VM, VB and VFM valves or with pressure independent valves AVQM and AFQM.



Electric actuator AMV/AME 65x

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