ENGINEERING
TOMORROW

Perform your best - even better
One wheel - **brings you one step ahead**

ECL Comfort controller – high performance for district heating, cooling and ventilation

11-15%

energy saving or more. ECL Comfort controllers ensure system efficiency, right temperatures and longer life time.

www.heating.danfoss.com

ECL COMFORT

Electronic controllers for district heating, cooling and ventilation

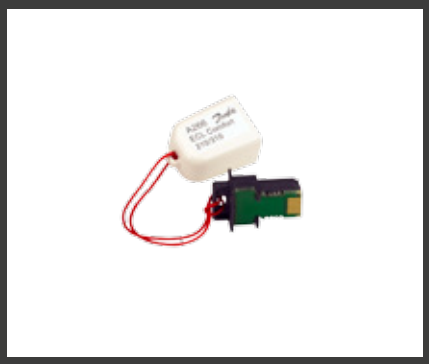
Danfoss is proud of our seventh generation of electronic controllers for temperature control in buildings. Based on the success and benefits of previous generations, the Danfoss ECL Comfort 210 and 310 controllers ensure comfort and convenience for heating, cooling and domestic hot water systems.

Less is more – benefits for you

The Danfoss ECL Comfort controller looks simple but works smarter, so it adds more to your performance than you would expect. For example, you can save on installation and commissioning time, reduce unplanned maintenance, benefit from a shorter learning curve, and reduce energy consumption.

On top of this, you get more built-in product features, more time for your business, and more satisfied customers. The advanced features and design never compromise ease of use, making installation, configuration and operation a breeze.

The design also provides a breath of fresh air. With clean, unobtrusive lines, an ECL fits into any surrounding. And the environment matters, so the ECL controllers enable you to reduce energy consumption, and as a result CO_2 emission.

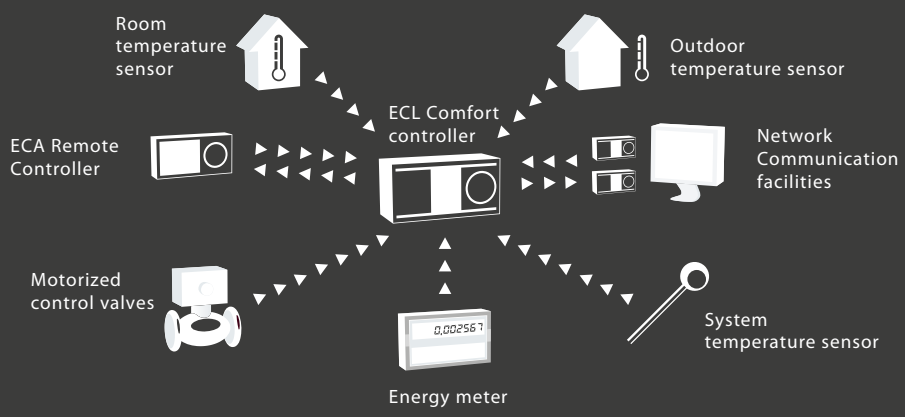


What role does the ECL Comfort play?

The ECL Comfort is an electronic controller for weather compensation. By fitting typical applications for district heating, cooling and micro network systems including communication, it enables you easily to optimize system performance and operation. This leads to energy savings and longer system life.

A correctly installed and commissioned electronic controller is the prerequisite for a stable and well-functioning heating system. Easy installation and an intuitive interface makes sure that the ECL Comfort controller is always installed correctly for the maximum benefit.

The house owners/tenants favorite
For the end-user, ECL Comfort controllers are first and foremost equal to energy savings. Lower energy consumption, registered by the Sonometer™ connected to the ECL Comfort, and a smaller heat bill will always be popular. The comfort level is of course still the same, and operation is made easy with the single dial interface which features a modern design.



Take a new turn in district heating

Engineered simplicity

Where most controllers for heating systems tend to become increasingly difficult to operate, Danfoss has taken a new turn.

With the ECL Comfort 210 and 310 controllers, setting up and operating the heating installation has never been easier or more straightforward. With the ECL controller or ECA remote control unit, all navigation and interaction takes place by turning and pushing the dial on the front panel.

All menus and system data readings are shown on the graphic display in your native language, and the logical menu structure makes operation smooth and intuitive.

There are no blinking lights or arrays of buttons and switches, but the possibilities are unlimited. This ensures correct commissioning and easy day-to-day operation, which in turn ensures optimum comfort and reliability.

A few steps of commissioning that put you...

Countless advantages

For successful commissioning of the Danfoss ECL Comfort controller only a few steps are required. It is very straightforward, and in fact you don't need any special programming knowledge.

- Elegant no-fuss user interface
- Intuitive software makes operation a breeze
- Instant feedback displayed in your own language
- Access to user data, alarms, logs and settings
- User-friendly technical documentation

Setup wizard
– Language selection
After wiring and connecting system components, such as pumps, actuators and temperature sensors, you can insert the ECL Application Key. Use the turn/push dial to select your preferred language and follow the setup progress on the display.

Setup wizard
– Application selection
Select your application from the system application range included on the ECL Application Key.
You can choose from application-specific factory settings or user-specific settings if they have been stored on the key.

The key to avoiding potential headaches

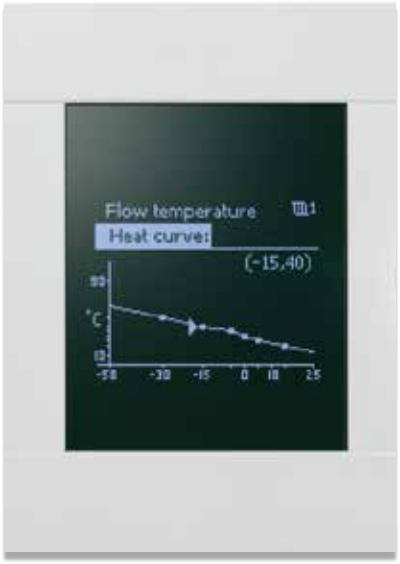
The ECL Comfort controller is matched with a full range of ECL Application Keys. Each Application Key is programmed with specific parameters for a particular district heating or cooling application.

The ingenious ECL Application Key makes it easier than ever to install and set up your heating system application in the ECL controller, all without any need for advanced programming. This makes it easy to manage and adjust your application settings.

In the event of malfunction in the heating system the application parameters won't be affected by e.g. power failure since they are stored in the controller. Besides the data logging facility in the ECL controller facilitates troubleshooting with no headaches, keeping system maintenance at a minimum.

The Application Key also facilitates copying of settings to other ECL controllers in the system. This makes it easy to adjust settings and helps ensure smooth operation and energy optimisation for years to come.

...one step ahead of schedule



Main controller settings
The main control parameters should be configured for optimum commissioning. They are located in the "settings" menu. Room heating and DHW flow temperatures are set in the user menus.

Heating curve
With six configurable coordinates for the flexible heating curve, the ECL Comfort 210/310 controller meets all requirements for achieving an accurate comfort temperature level in the system.

Favorite display
Select your favorite display from a set of pre-defined displays in order to get a quick system overview. Using your favorite display, you can perform functions such as selecting the controller mode (scheduled, comfort, saving or frost protection mode) and desired comfort temperature level (room and DHW).

One key

100% application expertise.
The data programmed in every ECL Application Key incorporates dedicated and applied expertise from worldwide experience with various applications.
This is your best guarantee for optimum system performance.

No unplanned service visits

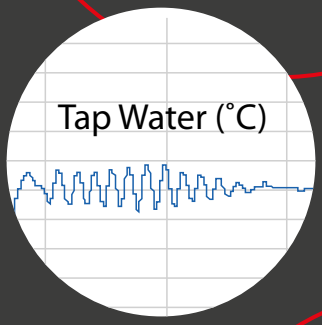
With correct commissioning, the lasting durability of ECL leads to full customer satisfaction and no unplanned service visits.

High performance made easy

The ECL Comfort controller is designed to function as the intelligent hub of a heating system or a district heating substation. The ECL Comfort controller is designed and developed with your needs in mind and incorporates a range of features that enable you to achieve high performance.

Automatic setup of DHW parameters

With advanced ECL Auto Tuning, control parameters for domestic hot water production can be configured and optimised automatically, ensuring both higher comfort and additional energy savings.

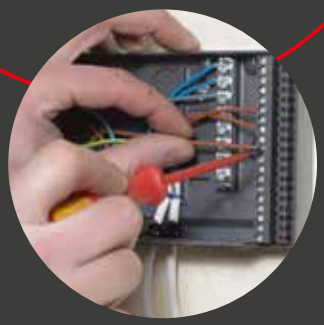


Clever communication

The ECL Comfort 310 offers state-of-the-art options for communication interfaces. The range of options, available either built-in or with extension modules, includes Modbus, M-Bus, and USB for service purposes.

Faster installation

Improved cable connectors and more space for wiring ensure fast and trouble free installation of the ECL Comfort controller in the system.



Easy interaction

The ECL Comfort controller has a large display with graphic text and a backlight. Supported by intuitive menu navigation, turn/push dial and the setup wizard, this makes the interaction straightforward.

Longer lifetime

The ECL Comfort controllers feature a unique motor protection function, which prevents instability in the system, thus protecting acutators and control valves against unnecessary activity. This results in up to 25% longer lifetime of these components.

Easy, Effective, ECL

Access your ECL controllers via PC or smartphone

The ECL Portal application for the electronic controller ECL Comfort 310 is an easy-to-use SCADA tool for control of your district heating system. ECL Portal enables you to streamline service, commissioning and maintenance – directly from your PC or smartphone, wherever you are.

Increase your service levels and reduce costs with 24/7 access and control and get a complete overview of energy consumption data, temperatures and flow. The result is optimum performance and actual energy savings.

Real benefits, real savings

The ECL Portal allows you to:

- Increase long-term system performance
- Gain a higher level of awareness and transparency of the energy consumption
- Improve service level and reduce response time to alarms
- Do troubleshooting without having to visit the heating system

Feel free to contact us or visit www.ecl.portal.danfoss.com for further information.

ECL COMFORT 210

Stand-alone controller for multiple heating and cooling applications with up to 2 circuits

- 2 control circuits + 1 thermostatic function
- Intelligent ECL Application Keys, series A2xx
- Turn/push dial navigation
- Large graphical display with backlight
- More room for cabling
- Cable box and user interface can be separated
- Two 3-point control outputs optimised for actuators
- 8 inputs: 6 Pt 1000, 2 configurable
- 4 relay outputs
- Data logging readout on display or via USB interface
- USB port for service
- Modbus RS485 for short cable distances
- Master/slave option
- Optimised for substations and operation in a system using Danfoss actuators, control valves, Pt 1000 sensors and pressure transmitters

ECL 210 summary:

Basic requirements, high performance in district heating systems.

ECL COMFORT 310

Controller with communication interfaces for applications with up to 3 circuits

In addition to the features of the ECL Comfort 210, the ECL Comfort 310 gives you:

- ECL Application Keys, series A2xx/A3xx
- Integrated communication interfaces:
  - USB interface for service
  - Modbus RS485 for longer distances
  - M-bus master dedicated for heat meters
  - Modbus TCP
- 10 input: 6 Pt 1000, 4 configurable
- Three 3-point output optimised for actuators
- 6 relay outputs
- Data logging readout on display or via communication interface
- Connection to ECL Portal - easy to install and access

ECL 310 summary:

For high requirements – with communication and extension options, without programming.

ECA Remote controller – Remote Control Unit (RCU):

In case of limited access to the basement or heating system, the ECL Comfort controller can be supplemented with a remote control unit, ECA 30/31, which can be placed at any desired location in the building.

This enables room temperature monitoring and control, easy interfacing, and remote access for overriding all the functions of the ECL Comfort controller.

Select ECL Comfort for your application

ECL 210	ECL 310	ECL Application Key designation	Application and system type	Circuit types			Domestic hot water (DHW)		
				Heating	Cooling	DHW	Storage with heating coil	Storage with charging	DHW control with HEX
■	■	A214	DH/DC (Vent)		*				
■	■	A217	DH						
■	■	A230	DH/DC		*				
■	■	A231	DH						
■	■	A232	DH/DC		*				
■	■	A237	DH						
■	■	A247	DH						
■	■	A260	DH						
■	■	A266	DH						
■	■	A275	BOILER						
	■	A333	DH						
	■	A361	DH						
	■	A367	DH						
	■	A368	DH						
	■	A376	DH						
	■	A377	DH						
	■	A390	DH		***				

Legend for ECL Application Key designation: A = Application Key
2 = Suitable for ECL Comfort 210 and 310
3 = Only suitable for ECL Comfort 310
xx = Specific application type

Abbreviations: DH (district heating); DC (district cooling)

ECL Comfort 310 extension options

For applications with extended requirement the additional internal I/O extension module ECA 32 is available.

- For refill water and two pump function
- For analog (0 - 10 V) control of motorized control valves, dampers and rotating heat exchangers
- Extra signal inputs
- For analog (0 - 10 V) control of circulation pump speed

ECL accessories and temperature sensors

- Base part for mounting on wall or DIN rail
- Temperature sensors (Pt 1000)
  - Outdoor and room
  - Pipe surface and immersion

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We mind your business

Danfoss is more than a household name in heating. For more than 75 years we have been supplying our customers all over the world with everything from components to complete district heating system solutions. For generations, we have made it our business to help you mind yours, and that remains our goal both now and in the future.

Driven by our customers' needs, we build on years of experience to be at the forefront of innovation, continually supplying both components, expertise, and complete systems for climate and energy applications.

We aim to supply solutions and products which give you and your customers advanced, user-friendly technology, minimum maintenance, and environmental and financial benefits along with extensive service and support.

Feel free to contact us or visit www.heating.danfoss.com for further information.

Danfoss A/S · Heating Segment · DK-6430 Nordborg · Denmark
Tel: +45 74 88 22 22 · E-mail: heating@danfoss.com · www.heating.danfoss.com

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