ENGINEERING
TOMORROW

Operating Guide

ECL Comfort 120 controller and app

1.0 Table of Contents

1.1 Important safety and product information

1.1.1 Important safety and product information

This Operating Guide is associated with the ECL Comfort 120 controller (code no. 100B1200, 100B1600, 100B1601, 100B1603).

The ECL Comfort 120 is a universal 1-circuit controller for use in district heating substations, district heating-based installations and boiler installations.

Interacting with the controller ECL 120 is possible via button or with a smart device like a mobile phone or tablet through Bluetooth wireless connection.

The ECL Comfort 120 can be operated via an app which is supported by an IOS or Android operating system.

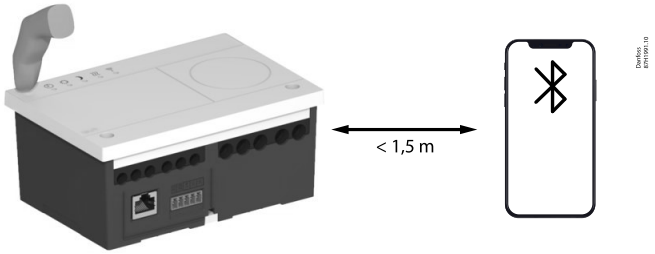
For operation via Bluetooth connection the application ECL GO is required and can be downloaded from the operating system dependent app market (Android or IOS). Pairing mode between smart device and ECL 120 is described in section 'Activating pairing mode (Bluetooth)'.

When interacting the ECL 120 with a smart device the distance between the controller and the smart device must be less than 1,5 m.

Ethernet port is ready for future on-line operation.

It is recommended to wire the product to mains supply using a suitable supply disconnecting device such as a circuit breaker or a cable and plug.

Interaction with the ECL Comfort 120 controller



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Safety Note
To avoid injury of persons and damages to the device, it is absolutely necessary to read and observe these instructions carefully.

Necessary assembly, start-up, and maintenance work must be performed by qualified and authorized personnel only.

Local legislations must be respected. This comprises also cable dimensions and type of isolation (double isolated at 230 V).

A fuse for the **ECL Comfort 296 / 210 / 310** installation is max. 10 A typically.
A fuse for the **ECL Comfort 120** installation is **max. 6 A.**

The ambient temperature ranges for ECL Comfort in operation are:
ECL Comfort 120: –5–50 °C
ECL Comfort 210 / 310: 0–50 °C
ECL Comfort 296: 0 - 45 °C.
Exceeding the temperature range can result in malfunctions.

Installation must be avoided if there is a risk for condensation (dew).

The warning sign is used to emphasize special conditions that should be taken into consideration.

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Safety Note

The electrical device must be installed according to the installation manual, all safety measures must be respected with installation.

The electrical device should be maintained only by qualified and authorized personal. Risk of electric shock.

Preventive and periodic maintenance should be performed by authorized or qualified personal only.

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Safety Note

The electrical device can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the appliance in a safe way and understand the hazards involved.

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Safety Note

Load devices should not exceed declared max. power draw.

Fuse should be designed according to max. power draw of controller.

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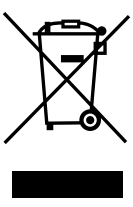
Safety Note

The ECL Comfort 120 controller shall be mounted in such a way that a safety distance of 20 cm is always kept.

This symbol indicates that this particular piece of information should be read with special attention.

°C (degrees Celsius) is a measured temperature value whereas K (Kelvin) often is used for temperature differences.



Disposal Note

This symbol on the product indicates that it may not be disposed of as household waste.

It must be handed over to the applicable take-back scheme for the recycling of electrical and electronic equipment.

- Dispose of the product through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

2.0 Daily use

2.1 A general overview: What do the symbols mean?

Symbol	Description
	Interaction button • Short press: Press shorter than 2 seconds • Long press: Press longer than 2 seconds • Very long press: Press for 10 seconds
	LED indicating – Schedule active (*green - active mode)
	LED indicating – Comfort mode (*green - active mode)
	LED indicating – Saving mode active (*green - active mode)
	LED indicating – Boost mode (*green - active mode)
	LED indicating – System (multicolor)** White (active): No application, not commissioned Yellow (active): Frost protection Red (active): Alarm Green (blinking): Boot procedure

Operating modes & statuses

*green - active mode	Different combination of LEDs can be active
**System (multicolor)	System LED can represent different activity indications and can be combined like Bluetooth active and warning message. Boot procedure takes about approx. 10 seconds when power is connected (System LED is blinking green). When controller is in ready mode LEDs turn ON.

2.2 How to navigate

The ECL Comfort 120 controller has several different operation modes that are also indicated through LEDs in the front panel.

It is possible to select different modes through buttons or through the dedicated application **ECL GO**.

Settings can be changed only through Bluetooth connectivity and through the application on the smart device and thus the use of app is recommended.

2.3 Operating the ECL 120 via LED indication

To change the mode without a smart device and application, a button must be pressed. Each short press will change the operating mode.

Operating modes & illustrations

Mode no.	Mode name	LED	Interacting	Description
1	Automatic scheduler		Start program – LED blinks 3 sec.	When the controller starts the LED for comfort is ON. The temperature reference is automatically switched between Comfort, Saving and Frost protection. LEDs are ON in combination like Automatic and Comfort.
2	Temporary boost		1 short press -> both LEDs blink 3 sec.	Boost has a period of 1 hour. Hereafter the LED will go back to Mode 1. Temporary boost is only active when comfort or reduced temperature is active. If only automatic schedule is on then temporary boost has to be skipped.
3	Constant comfort		2 short presses -> LED blinks 3 sec.	The temperature reference is set to a temporary boost (1 hour by default, adjustable via app), **after the time has expired depending on what the starting program was, the mode is switched to Automatic scheduler. Temperature reference value is by default 22 °C.**
4	Permanent boost		3 short presses -> both LEDs blink 3 sec.	The temperature reference is set to Comfort with permanent boost.
5	Reduced temperature		4 short presses -> LED blinks 3 sec.	The temperature reference is lowered (18 °C by default).
6	Frost protection		5 short presses -> LED blinking	The temperature reference is 8 °C and the pump is ON. Yellow LED indication.
7	Application update is ongoing		Sliding / moving pattern	Application is being updated — do not power off!

By pressing buttons modes are changed according to sequences described above.

In Automatic / Scheduler (Mode 1 & 2) the operation status is changing so the LED can vary.
After pressing button (1) LED is blinking. This means that the selected operating mode becomes active.
When the ECL has been commissioned then the HMI is responsible to illustrate the following setting modes through LEDs as well as the user may switch among these modes via a **short press**.

2.3.1 Boost function

By means of the boost function the supply temperature can be increased for a set value and time.
The boost function can be used in automatic / scheduler mode or in constant temperature mode.
In automatic mode there is a possibility to only temporarily boost the temperature (1 hour default value and it can be adjusted via app). Temporary boost function can be active in Automatic, Comfort and Saving mode.

In constant comfort mode the function of permanent boost can be activated and will be active until cancelled.

With the boost function the calculated supply temperature is increased by the set value (default 5 K).

Boost indication

2.3.2 Activating pairing mode (Bluetooth)

The first four LEDs operate no matter if pairing has been done or not.
The story board to the right describes how pairing is indicated.

If the connection is lost and the blue system LED is off then the operator must press the button on the controller to activate Bluetooth again and in this case there is no need to pair the smart device and the ECL 120 again.

Phone pairing procedure

State 1:
Constant Comfort Temperature selected

Press button ~ 3 sec.

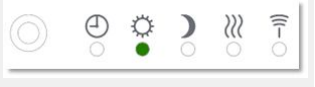
State 2:
Pairing in process.
Blue LED is blinking

Blue LED is blinking

State 3:
The phone is paired, the blue LED is constantly on

Blue LED stabilizes

State 4:
The phone is unpaired



2.3.3 Alarm or error indication

In case of faulty / missing sensor the system LED is blinking **red**.

If a mandatory sensor is detected as missing or faulty the controller will stop and the error LED will be ON.

The detailed cause can be seen in the mobile application under menu Alarms.
In this case it is necessary to call maintenance or authorized personal.
When the error/fault is resolved the controller will again control the process according to settings.

Alarm is active

Alarm & Bluetooth are active

2.4 Operating the ECL 120 with an app

To operate the ECL 120 with an app the operator must install a dedicated application named **ECL GO** which can be linked from the QR code presented to the right.

The application language is dependent on the mobile phone or tablet operating system language. If the language is not supported by the application, it will be presented in English.

ECL GO can be downloaded by scanning the QR code.
The application is intuitive and will guide the user to connect and operate the ECL Comfort 120 controller.

The distance between the controller and operator's mobile device / tablet should be less than 1,5 m to get good wireless communication. Any metal obstacles in between will interfere the signal.

After the application is downloaded and installed on the smart device the operator must start commissioning the controller. Bluetooth on the smart device should be activated.

To start the application press the icon of the ECL GO and the menu of connecting to device is shown. Before searching the ECL 120 controller must be put to pairing mode according to the guide (mobile phone pairing). From the smart device the controller is scanned and all available controllers are displayed. The user selects the ECL to be connected.

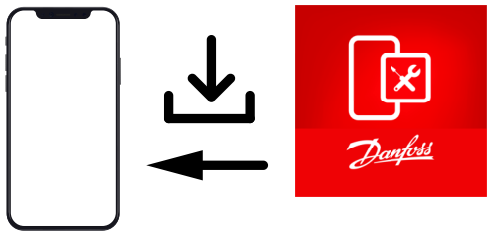
The application guides the user through the commissioning procedure with general settings to select floor or radiator settings. Default settings are already uploaded based on the selected type of heating.

The next procedure is to select the basis for the flow temperature control which is based on the room sensor, weather compensation, primary supply or fixed reference. External input is supposed to be used like heating master or thermostat. Within the next steps connected components are displayed and correct wiring is done.

After finishing commissioning a report of the set-up can be prepared and saved.

Guide on the functions in the app can be found in the **ECL GO** app.

Downloading app to smart device



QR code for Android/IOS

2.4.1 Home menu icon on ECL GO

The home menu shows and guides the user to the basic functions which are positioned on the top and bottom display.

- Four different modes are displayed and selection can be made between Automatic, Comfort, Saving and Frost protection.
- On the bottom there is a menu to select between Home, Alerts, Week or Schedule, and general settings are represented with three dots and More.

2.5 Master – slave connectivity

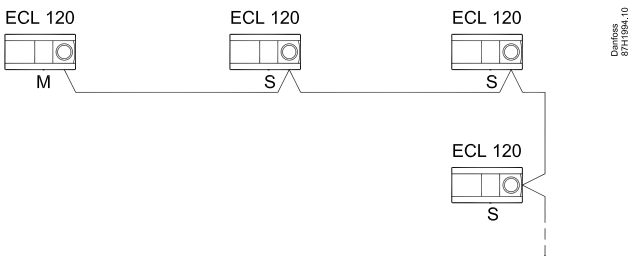
The controller can be connected in master-slave systems via the RS485 communication terminal (2 x twisted pair cable) as master or slave. Controllers must be wired according to the figure to the right. Polarity A and B or + or – on controllers must be respected. Master controllers must be set up to broadcast data in local communication.

Up to 20 ECL Comfort 120 controllers can be connected in a local ECL network.
Settings and addressing must be done via mobile phones app.

Operating mode is selectable between Modbus RTU or ECL 485 and can be selected for terminals 34 – B (D+), 35 -A (D -) and GND. When connecting multiple controllers in serial connection max. cable length is 1200 m and termination should be respected. In ECL 485 mode the cable length should be less than 100 m in total.

Local ECL 485 bus is not compatible with ECL Comfort 210/296/310 controllers.

Master-slave picture



2.6 Application update

The controller application can be updated when connected to the mobile application. After the process of application update is activated, the user will be guided through and the led indication will be represented according to the picture to the right.

When the application update is completed the controller indication will be according to the described modes.

Application update is ongoing

During the controller application update, the controller will not be controlling the heating circuit and should not be powered off.
The controller might restart several times during update.

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