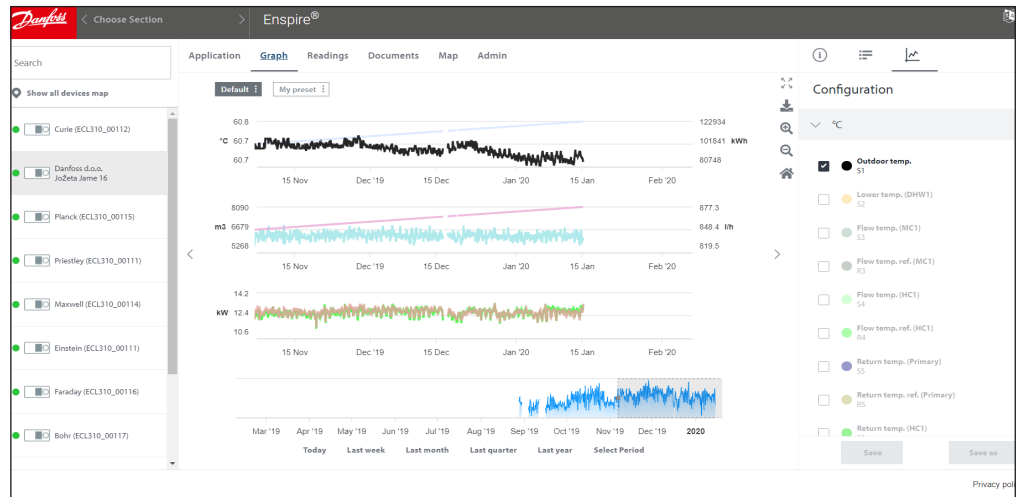


Data sheet

Danfoss Enspire®

A web-based SCADA software application

Description



Enspire®

Danfoss Enspire® is a web-based SCADA software application (Supervisory Control And Data Acquisition) for district heating systems.

Enspire® is built on strong bases of already established Danfoss solutions with new and improved features for remote monitoring, control and optimization of your district heating.

A reliable and stable software solution brings you a cost effective and energy efficient management and lays the foundations for a connected future of your district energy system.

Enspire® is offered as a hosted SaaS solution. This means that Danfoss takes care of all maintenance, backup and security updates of the system. Customers can access the system from any internet connected PC or laptop.

The user of Enspire® can remote control and monitor the parameters settings in the controllers and monitor actual, reference and historical values of sensors and energy consumption meters connected to the controllers.

User benefits

The advantages of Enspire® are among others:

Customized for district energy

Danfoss Enspire® is tailored specifically for district energy systems. Every function is designed to simplify your daily tasks and ensure that your system operates with improved control and better efficiency.

This can be achieved by providing you with a better system overview by dashboards and customizable KPI widgets, with predefined alarms and report templates, functions like auto-commissioning and group settings. At the same time you can fully customize it to the specific needs of your district energy utility.

- Improve your network control and management with actionable information insights
- Faster and more efficient management of your daily tasks with predefined report templates and alarms & functions like auto-commissioning, group settings
- Easy integration of new devices
- Danfoss district energy and app experts available for support
- Faster and more efficient management of your daily tasks

Open, connected and transparent

Benefit from open communication and data interfaces. Besides wide range of Danfoss products, you can easily integrate devices from other (third party) providers. Collected data can also be made available for other business (e.g. billing) and operational systems (optimizers, energy management ...).

- Connect with any device using standard communication
- Easy integration with business intelligence and optimization solutions
- Plug'n'play for Danfoss district energy optimization

Always up to date

Your investment will never be outdated. We are dedicated to constantly improve and upgrade the solution and will provide you with the access to all the latest features and improvements.

Safe and secure

Your data will stay safe and secure as Danfoss Enspire® provides protection for all interfaces and stores data with the trusted security mechanisms.

Enspire® is hosted in highly secure modern data centers located within the EU. Data within Enspire® is processed, stored and secured in compliance with EU regulations.

Modern web-based solution

Being a web-based solution, Danfoss Enspire® can never be outdated, as the regular improvements and upgrades are instantly available and provided to you. The online system can be accessible from everywhere using a standard web browser on desktop or mobile devices. At the same time it provides efficient protection for all interfaces and stores data with the trusted security mechanism ensuring all your data stays safe and secure.

- Always up to date – the latest version is automatically available for your use
- Clear and customizable user interface
- Access from anywhere and from any device (mobile, desktop compatible)
- Trusted security mechanisms for safe and secured data storage.

Operate with more control and better efficiency

The software was developed with a special attention on your daily tasks and our dedication to simplify them to save your time.

Get a better overview of your system with improved alarming features and reporting. And with easier commissioning, group settings, etc. you are now able to manage your daily business in a faster and more efficient way.

Lower your investment cost

Using the Danfoss Enspire® subscription model (Software as a Service) will result in lower IT investment and IT equipment maintenance cost, consequently unlocking your resources to focus on your primary business.

- Lower your total cost of ownership and improve return on investment
- Reduced IT investments and maintenance costs using Software as a Service
- No local IT infrastructure and knowledge required
- Unlocking your resources to focus on your primary business

Team of experts at your service

Benefit from our know-how data base, access to online and on-site trainings, online video guides, support forums and engineers.

This will result in your improved performance and overall satisfaction.

Application

Enspire® automatically adapts its user interface to fit the application in the controller. In most cases, Enspire® can also automatically detect the correct application. However, for some older controllers it is necessary to select the correct application during commissioning.

The following controller applications are supported:

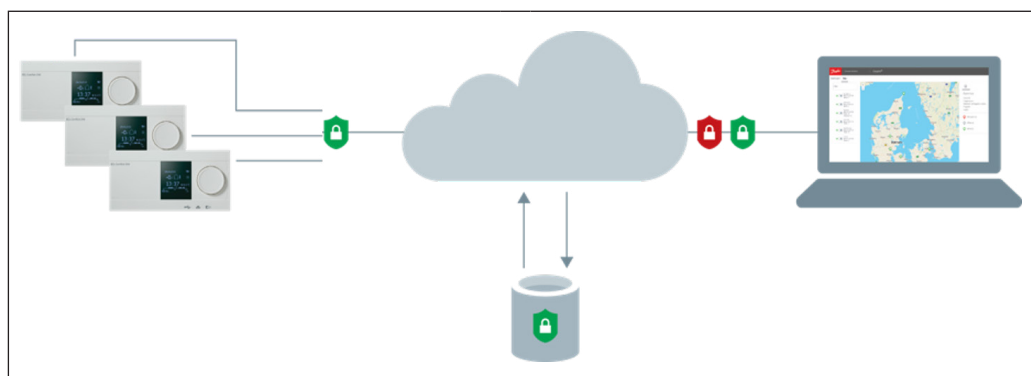
- ECL Comfort 310 controller
 - Please see 'List of application keys supported by Enspire®'.
Go to: <https://www.danfoss.com>
In the 'Service and support' menu select 'Documentation' > 'Data sheets' and search for the literature number. (AI131486467165)
- OPR0020 Controller
 - Firmware R9 and newer

As an option the ECL Apex 20 controller can be integrated into Enspire® to remote control and monitor the district heating utility or boiler house.

This requires a system integrator to develop a customized application for the ECL Apex 20 controller as well as a customized HMI for the Enspire® system using the OPC server software for ECL Apex 20 (not included in Enspire®).

Below is an example of Enspire® configured with ECL Comfort 310 electronic controllers connected over TCP. This is the recommended connection method for controllers to Enspire®, as this avoids running any IT infrastructure locally at the customer's site.

In this case, Enspire® and the controllers communicate via Modbus/TCP over a secure encrypted connection.

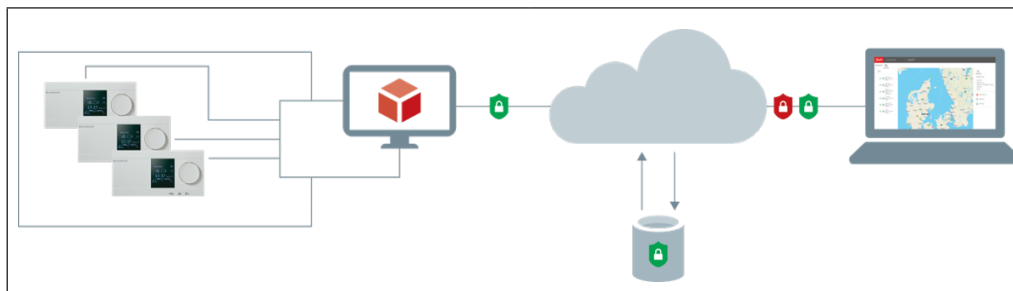


Application

Below is an example of connecting controllers on a closed network (e.g. a serial to Enspire®). In this case, the controllers must be connected through a local OPC-UA server.

Enspire® includes a light-weight software gateway that must be installed on the OPC-UA server in order to securely connect to Enspire®.

The communication between the controllers and the OPC-UA server can be any protocol supported by the controllers, server, and network, e.g. Modbus/RS485, Modbus/TCP or LON.



Languages

The following languages are supported by the graphical user interface of Enspire®

- English
- German
- Danish
- Dutch
- Turkish
- Russian

Supported controllers

The following controllers are supported by Enspire®

- Danfoss ECL Comfort 296 electronic controllers
- Danfoss ECL Comfort 310 electronic controllers
- Danfoss ECL Comfort 310B electronic controllers
- NOPRO OPR0020 electronic controller (via built-in OPC-UA server)
- Danfoss ECL APEX20 free programmable controller (via built-in OPC-UA server)

Supported application keys

Please see data sheet 'List of application keys supported by Enspire®' (AI131486467165).

Note:

When connecting through an OPC-UA server, the server must also support the relevant applications for the controllers to be supported by Enspire®. An example is when a Modbus-RS485 subnet of ECL controllers or OPR0020 controllers, or a mix hereof, is connected to Enspire® via this OPC-UA server.

Supported energy meters (M-bus)

Please see data sheet 'Energy meters supported by Danfoss SCADA solutions and ECL Comfort 296/310' (AI150386468396).

Please be aware that battery operated energy meters are not recommended, because the data communication will shorten the battery lifetime.

Data communication

The options for data communication between controllers and server are listed below.

Type	Description	Remarks
Direct	ECL Comfort 296/310 controllers connected directly to Enspire® using the ethernet connection on the controller to connect directly over the internet.	It is highly recommended to enable encryption in the controller settings in order to secure the transmission of data end-to-end.
Via OPC-UA	Intended for connecting existing serial networks to Enspire®. In this case, the Enspire® software gateway must be installed alongside the OPC-UA server to facilitate secure communication to Enspire®.	In that case, Enspire® will handle security from the OPC-UA server and to Enspire®. Security and reliability of the network below the OPC-UA server is not managed by Enspire®. Performance of Enspire® may be degraded due to technical limitations of the OPC-UA server and underlying controller network.

Ordering

Please contact your local Danfoss sales company.

Technical data

For further information on technical data, please go to:
<https://www.danfoss.com>

In the 'Service and support' menu select 'Documentation' > 'Manuals & guides'
and search for the literature number.
<https://www.danfoss.com/en/service-and-support/documentation/>

Type	Description	Literature no.
Instructions/ Operating guide	ECL Comfort 210 / 296 / 310, communication description	AQ074886472234
Service guide	ECL Comfort 296 / 310 controllers Modbus networking guide	AX236986479687
Operating guide	Connection of ECL Comfort 296 / 310 controller to wireless network (WLAN)	AQ070386470176

System requirements

Requirements to the client computer accessing Enspire®

Operating system	Windows 10 (any version) or newer.
CPU	Modern dual-core processor, e.g. Intel Core i5 or similar.
RAM	2GB of free memory.
Free disc space	500MB
Internet connection	A stable always-on internet connection is required for the Enspire® software gateway to transmit data to Enspire®.
Backup and security	Since Enspire® is offered as a hosted solution, Danfoss ensures that the transmitted data is securely encrypted, stored, and backed up. Danfoss strongly recommends that customers keep all software up to date including their operating system on all systems connected to the internet.

Note:

Performance may be impacted by other software and/or tasks running on the same PC as the OPC server and the Enspire® software OPC gateway. If the above specifications are adhered to, and performance is lacking, make sure that the PC is not being used for additional workloads.

Requirements to Enspire® software OPC gateway

The Enspire® software OPC gateway is designed to be installed on the same PC as the OPC server is running on.

Web browser	<p>Latest version of</p> <ul style="list-style-type: none"> • Google Chrome • Mozilla Firefox • Microsoft Edge <p>Danfoss always recommends keeping your browser up to date.</p>
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System requirements

Requirements to the ECL Comfort 296/310 controllers

Controller software	ECL Comfort 296 / ECL Comfort 310 controllers must be software version 1.11 (or newer). If it is version 1.11 – 1.30 then it will automatically be updated by the application key to at least version 1.30. If it is older than version 1.11 then it cannot be used for Enspire®.
Application key software	1.04 (or newer)
ECA 30 Remote Control (optional)	1.30 (or newer)

Requirements to the NOPRO OPR0020 controller:

Controller software	NOPRO OPR0020 controllers must be software version R9 (or newer).
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Technical literature and additional information

Please go to:
<https://www.danfoss.com>

In the 'Service and support' menu select 'Documentation' > 'Data sheets' and search for the literature number.
<https://www.danfoss.com/en/service-and-support/documentation/>

Type	Description	Literature no.
Appendix to data sheets	Energy meters supported by Danfoss SCADA solutions, Enspire® and ECL Comfort 296 / 310	A1150386468396
Appendix to data sheet on Enspire®	List of application keys supported by Enspire®	A1131486467165

For further information on supported application keys please visit <http://danfoss.com>

In the 'Product' menu select 'Electronic Controls > Monitoring Solutions > Documents'
<https://www.danfoss.com/en/products/electronic-controls/dhs/monitoring-solutions/>

Danfoss A/S

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