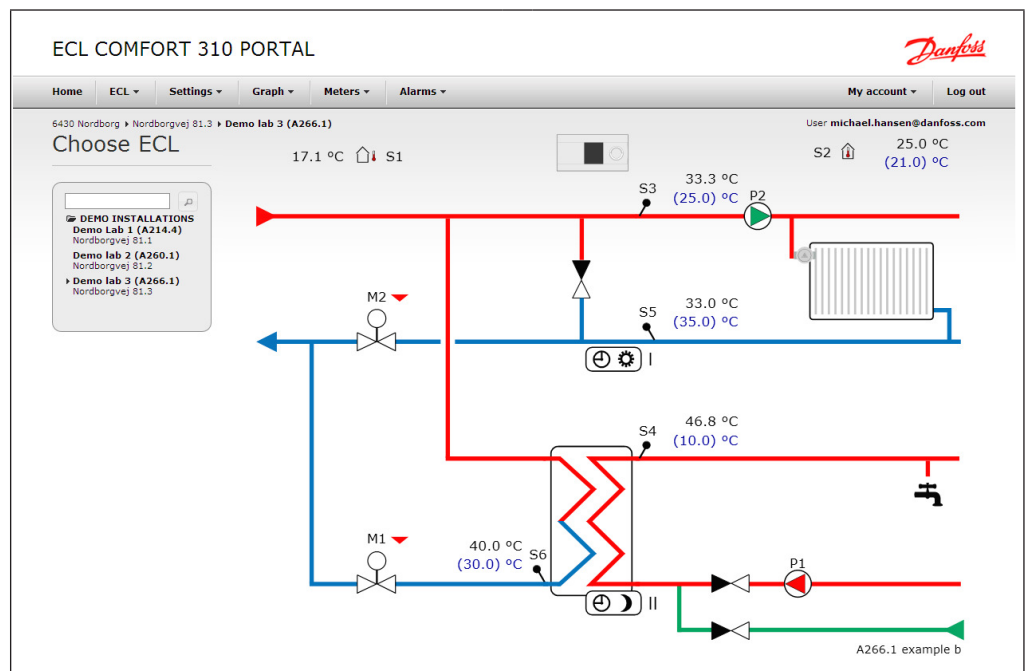


Data sheet

Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

Description



The ECL Portal is an effective turnkey SCADA (Supervisory Control And Data Acquisition) tool for professional users like service personnel of district energy stations to streamline service, commissioning, maintenance and control tasks. Service level can be increased and/or service costs reduced.

Professional users have access to a hotline for local support, i.e. help on features of the ECL Portal and Smartphone apps which seem not to be functioning properly, troubleshooting on how to get the ECL Comfort 296 / ECL Comfort 310 controllers connected to the internet and ECL Portal or explanations of the features of the ECL Comfort 296 / ECL Comfort 310 controllers and ECL Portal in general.

However, no consulting services regarding the behavior of specific installations, optimizations etc. are included in the support.

The ECL Portal is also a valuable tool for private end users of district energy stations for monitoring energy consumption and to adjust temperature settings. Private end users do not have hotline support included, but are instead encouraged to use the documentation available online.

By providing a user friendly graphical interface to energy consumption data, temperatures and flow, the end user's awareness of the energy consumption increases, thereby lowering the energy consumption.

The heating installation is made accessible from virtually anywhere at any time via laptops or Smartphones which increases service level and reduces response time to alarms.

Key features

- **User accounts**

Each user has a User Account with login information.

Private end users are able to create a user account and get access to the basic features of the ECL Portal. A one-time license fee is charged.

Professional users are able to create a user account and get access to all of the advanced features of the ECL Portal. An annual license fee is charged.

- **Application overview**

The application selected on the ECL Comfort 296 / ECL Comfort 310 is automatically depicted on the main screen of the ECL Portal.

All ECL Comfort 296 / ECL Comfort 310 controllers available to the user are grouped in the left pane for easy navigation.

Current sensor values and reference settings are shown on the screen.

Pump and valve symbols are automatically updated to reflect current state (on/off, opened/closed).

The specific application variant can be chosen in the ECL Edit menu.

- **Data logging**

Values from up to 14 sensors used by the application, e.g. temperature and pressure are logged with a 15 min interval and stored on the ECL Portal for a period of 3 months.

Sensors connected to the inputs of the ECL Comfort 296 / ECL Comfort 310 controllers which are not used by the application can be configured and logged with an 1 hour interval.

Values from energy consumption sensors and meters are logged with an 1 hour interval and stored on the ECL Portal for a period of 5 years.

All logged data can be viewed on the ECL Portal or exported to a file, e.g. CSV, XLS, PDF, RTF or XML. All data are backed up each 48 hours.

- **Trend curves**

Graphs for all or any selected sensors can be shown on the screen. The graphs are based on the logged data.

The user can create custom graphs for meters and sensors.

The cursor can be dragged to any location on the graph to read numerical values of the sensors at a specific time.

- **Alarming**

Min. and/or max. limits can be specified for all values from meters and the sensors used by the application (max 14).

If a limit is exceeded then an alarm e-mail is automatically sent to the user.

ECL alarms supported by the application are also supported by the ECL Portal.

When the user logs on to the ECL Portal then new alarms from all available ECL Comfort 296 / ECL Comfort 310 controllers are shown on the screen. A list of active alarms can be shown on the screen at any time.

- **Settings**

Most of the settings in the ECL Comfort 296 / ECL Comfort 310 controllers are made available on the ECL Portal.

Changing the settings via the ECL Portal makes it possible for the user to adjust parameters, optimize control, override the automatic control and specify holiday schedules remotely.

- **Live ECL**

View the display of the ECL Comfort 296 / ECL Comfort 310 controllers live and save screenshots for documentation.

Navigate the menus of the ECL Comfort 296 / ECL Comfort 310 controllers live by turning and pressing the navigation wheel from the ECL Portal.

- **Customizable home page**

The home page, which is shown when a user logs in, can be customized to show alarms or to show the contents of an external website. The external website can show information from 3rd party software, i.e. SCADA or BMS.

- **Geographical overview**

A geographical map shows the location of all the ECL Comfort 296 / ECL Comfort 310 controllers registered to the user account or the ECL Comfort 296 / ECL Comfort 310 controllers in the selected group.

The geographical overview highlights any ECL Comfort 296 / ECL Comfort 310 controllers which has an alarm or is in holiday mode.

An information box at the ECL Comfort 296 / ECL Comfort 310 controllers shows status and a list of alarms and provides easy access to further details about the ECL Comfort 296 / ECL Comfort 310 controllers.

Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

User benefits

The ECL Portal is an effective turnkey SCADA tool for service personnel and administrators of district energy stations. The advantages of the ECL Portal are among others:

Easy installation

- Automatic configuration makes installation and commissioning easy
- Supports ECL Comfort 296 / ECL Comfort 310 and standard application keys
- No extra hardware or software installation
- Uses standard internet connection

Easy access

- Access to control and monitor locally and remotely
- Smartphone apps for Android and iOS

Standard features

- All standard features of a SCADA system are available (application overview, monitoring and data logging of sensor and meter values, trend curves, alarming, adjustment of ECL Comfort 296 / ECL Comfort 310 parameters etc.)

Low total costs

- No initial investments
- Low license costs per ECL Comfort 296 / ECL Comfort 310
- Low costs to system integration
- Low costs to commissioning

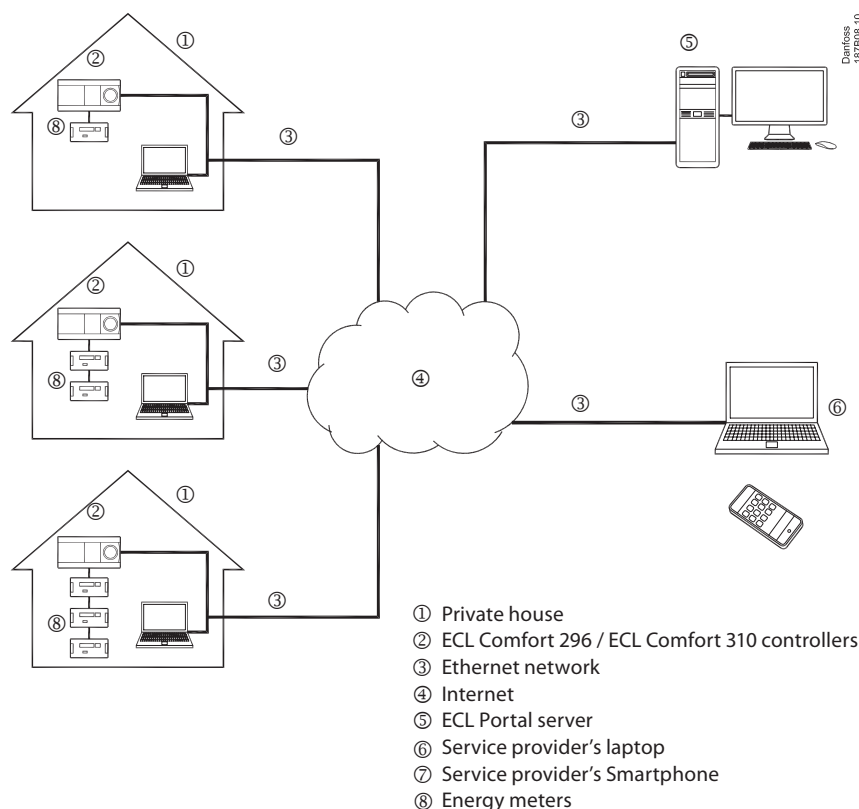
Application

A typical application using the ECL Portal is shown below. In this example a service provider uses his laptop and Smartphone with internet connection to monitor and control the heating installations and read the energy consumption in several buildings using the ECL Portal (professional user account).

The buildings have installed substations with ECL Comfort 296 / ECL Comfort 310 controllers and in each building one or more energy meters are connected to the ECL Comfort 296 / ECL Comfort 310 controllers to measure the energy consumption in each building. The ECL Comfort 296 / ECL Comfort 310 controllers are connected via Ethernet to the internet using the available LAN (Local Area Network) in the building.

The people living in the buildings are using their laptops to monitor their energy consumption via the ECL Portal (private end user accounts) and to set room temperatures and night setback schedules.

All ECL Comfort 296 / ECL Comfort 310 controllers communicate via Internet with the ECL Portal server hosted by Danfoss. The ECL Portal server stores the sensor values and energy consumption data in its database.



Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

Supported controllers	The following controllers are supported by the ECL Portal:	<ul style="list-style-type: none"> • Danfoss ECL Comfort 296 electronic controllers • Danfoss ECL Comfort 310 electronic controllers • Danfoss ECL Comfort 310B electronic controllers
Supported application keys	Please see data sheet 'List of application keys supported by the ECL Portal' (VD.HX.I).	
Supported energy meters	Please see data sheet 'Energy meters supported by Danfoss SCADA solutions and ECL Comfort 310' (VD.HX.J).	Please be aware that battery operated energy meters are not recommended because the data communication will shorten the battery life time.
Languages	Language automatically adapts to the location of the user based on the regional settings of the user's computer. The following languages are supported by the graphical user interface:	<ul style="list-style-type: none"> • Austrian • Danish • English • Finnish • German • Lithuanian • Polish • Russian • Swedish • Ukrainian
User accounts	<p>Professional users</p> <p>Professional users have full access to all the features of the ECL Portal. Professional users can register unlimited amount of ECL Comfort 296 / ECL Comfort 310 controllers to the account. The license for professional users is paid annually based on the amount of registered ECL Comfort 296 / ECL Comfort 310 controllers.</p> <p>The license for professional users also includes hotline for local support, i.e. help on features of the ECL Portal and Smartphone apps which seem not to be functioning properly, troubleshooting on how to get the ECL Comfort 296 / ECL Comfort 310 controllers connected to the internet and ECL Portal or explanations of the features of the ECL Comfort 296 / ECL Comfort 310 controllers and ECL Portal in general.</p> <p>However, no consulting services regarding the behavior of specific installations, optimizations etc. are included in the support.</p>	<p>Private end users</p> <p>Private end users will use the ECL Portal for monitoring their energy consumption and temperatures and for adjusting basic parameters of the ECL Comfort 296 / ECL Comfort 310 controllers. A private end user has limited access to the features of the ECL Portal, but will be able to:</p> <ul style="list-style-type: none"> • monitor current and reference sensor values • monitor heat meters • see trend curves for logged data • export logged data to files • set schedule and holiday programs • set time & date • set comfort and saving room temperatures • set alarms <p>A private end user can register a few ECL Comfort 296 / ECL Comfort 310 controllers to the account. The license for private end users is paid once and covers lifetime (min. 5 years) access to the ECL Portal. The license for private end users does not include hotline support.</p>

Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

Ordering

The ECL Portal is available at this address:

<http://ecl.portal.danfoss.com/>

The Smartphone apps can be downloaded for free via Apple AppStore (for iOS based Smartphones) and Google Play Shop (for Android based Smartphones). The app is found by searching for "ECL Portal".

Private end user and professional user accounts can be created for free. However, to register one or more ECL Comfort 296 / ECL Comfort 310 controllers to a user account a license key is needed for each.

It is possible to register ECL Comfort 296 / ECL Comfort 310 controllers to user accounts for free for a limited trial period.

During the trial period both professional and private end users have full access to the features of the ECL Portal.

When the trial period is about to expire you will receive instructions via e-mail about how to obtain and pay for license keys.

Type	Designation	Code no.
License	ECL Portal professional user account license (one per professional user account)	187B0001
	ECL Portal controller license (one per ECL controller registered to the user account)	187B0002
	ECL Portal private end user account license (one per private end user account)	187B0003
Controller	ECL Comfort 296 Controller ¹⁾	087H3000
Controller	ECL Comfort 310 Controller ¹⁾	087H3040

¹⁾ See separate data sheet for this component for ordering details

Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

System requirements

The requirements to the computer accessing the ECL Portal are:

Web browser	<ul style="list-style-type: none"> • MS Internet Explorer • Firefox • Chrome • Safari <p>Supported browser versions: The newest version available at the time the user accesses the ECL Portal and one year back in time.</p>
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Requirements to the ECL Comfort 296 / ECL Comfort 310 connection to the Local Area Network (LAN):

Electrical interface	Ethernet, RJ45 connector
Cable type	Ethernet cable (CAT 5)
Max. bus cable length	According to Ethernet standard
LAN communication speed	<ul style="list-style-type: none"> • 10 Mbit/s • 100 Mbit/s
Network	Star network according to the standard Ethernet
IP addressing (LAN side)	Dynamic or static. DHCP server is needed on the LAN for the ECL Comfort 296 / ECL Comfort 310 to use Dynamic IP addressing.

Requirements to the internet connection from the Local Area Network (LAN):

Security	Firewall must allow TCP Port 502 (default for Modbus-TCP protocol) and TCP Port 80 (default for HTTP) traffic to pass from the LAN to the WAN side. Other ports can be blocked in both directions to increase security.
DNS (Domain Name System)	DNS must be accessible for the ECL Comfort 296 / ECL Comfort 310 to look up IP address of ECL Portal server.
Internet bandwidth	1 Mbit or more
Internet connection media	Wired internet connection is preferred due to reliability, speed and latency. Mobile internet connection, i.e. 3G or 4G, can be used (see separate guide "Connecting ECL Comfort 310 via 3G/4G to SCADA server" for details).
IP addressing (WAN side)	Dynamic or static
Data amount	App. 10 Mbyte per day, depends on the use of ECL Portal and amount of sensors and meters connected to the ECL Comfort 296 / ECL Comfort 310.

Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

System requirements (continued)

Requirements to the ECL Comfort 296 / ECL Comfort 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 ECL Portal.
Application key software	1.04 (or newer)
ECA 30 Remote Control (optional)	1.30 (or newer)

Requirements to the Smartphone:

Operating system	<ul style="list-style-type: none"> • Apple iOS 4 (or newer) • Google Android 2.1 (or newer)
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Cloud-based SCADA solution for ECL Comfort 296 / ECL Comfort 310 controllers

Additional documentation for ECL Comfort 296 / ECL Comfort 310, modules and accessories is available on <http://heating.danfoss.com/>

Danfoss A/S

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