

ENGINEERING
TOMORROW

Danfoss

User Guide

KoolProg®



Table of contents

0.0 Introduction _____ 2

1.0 Downloading .exe file _____ 2

2.0 System requirements _____ 2

3.0 Installing software _____ 3

4.0 Connection with controllers _____ 3

5.0 Starting the Program _____ 6

6.0 Set parameters _____ 7

7.0 Copy to controller _____ 10

8.0 Service _____ 11

9.0 Unknown controller support _____ 13

0.0 Introduction

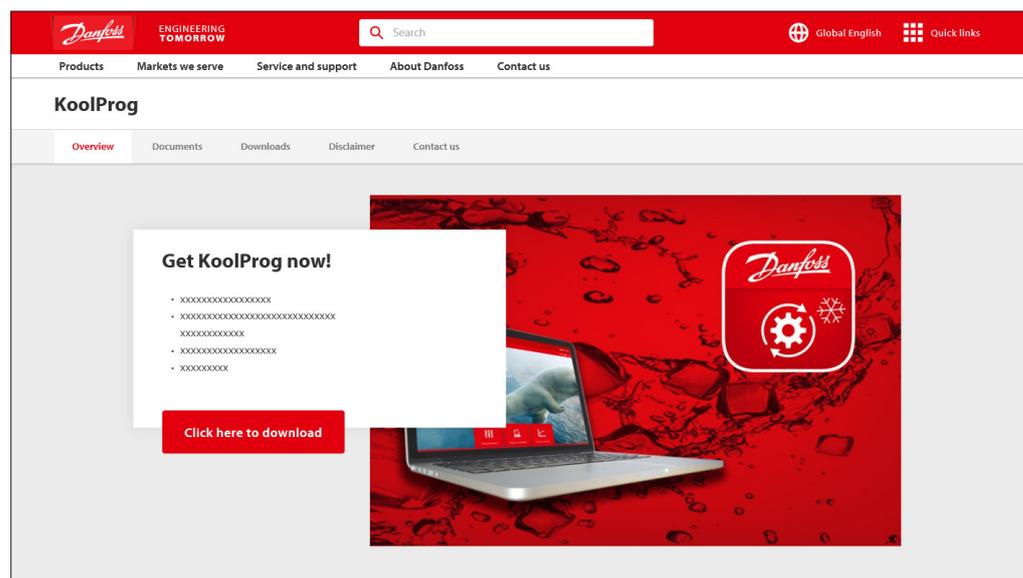
Configuring and testing the Danfoss electronic controllers has never been so easy with the new KoolProg PC software.

Now with one KoolProg Software, you can take advantage of new intuitive features such as the selection of favorite parameter lists, writing online as well as offline program files, and monitoring or simulating alarm status activities. These are only some of the new features that will minimize the time R&D and production will spend on development, programming, and testing the Danfoss range of commercial refrigeration controllers.

Supported Danfoss products: ETC 1H, ERC 111/112/113, ERC 211/213/214, EKE 1A/B/C. The following instructions will guide you through the installation and first time usage of KoolProg®.

1.0 Downloading .exe file

Download KoolProgSetup.exe file from the location: <http://koolprog.danfoss.com>



2.0 System requirements

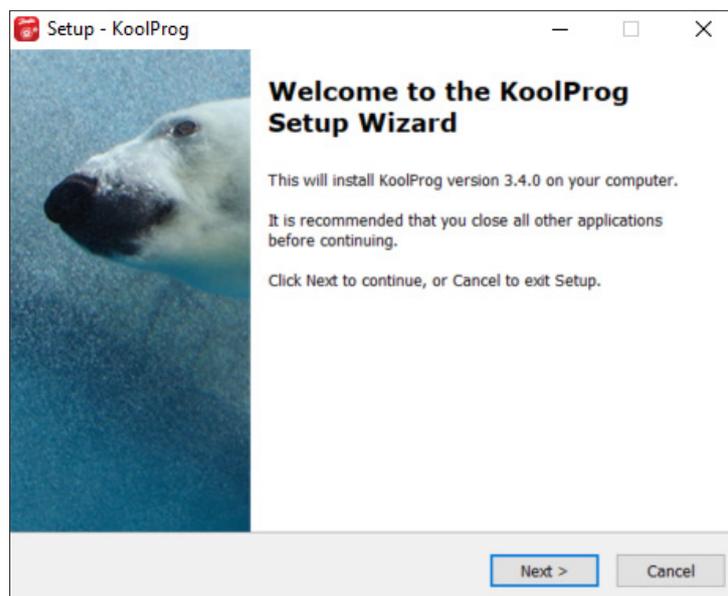
This software is intended for a single user and recommended system requirements as below.

OS	Windows 7, Windows 10, 32 bit and 64 bit
RAM	8 GB RAM
HD Space	200 GB and 250 GB
Required software	MS Office 2010 and above
Interface	USB 3.0

Macintosh Operating system is not supported.
Running the set up directly from windows server or Network file server is not recommended.

3.0 Installing software

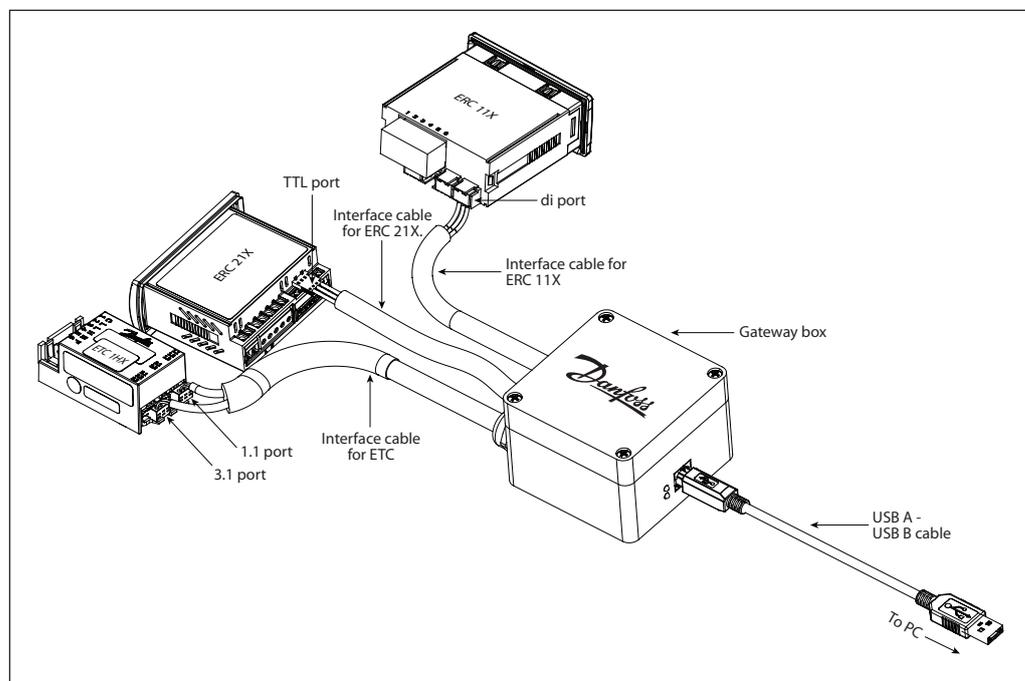
- Double click on the KoolProg® setup icon
Run the installation wizard and follow the onscreen instructions to complete the KoolProg® installation.



Note: During installation if you encounter a "Security warning", please click on "Install this driver software anyway".

4.0 Connection with controllers

Fig 1. Connection for ERC and ETC using gateway box
(Code No. 080G9711)

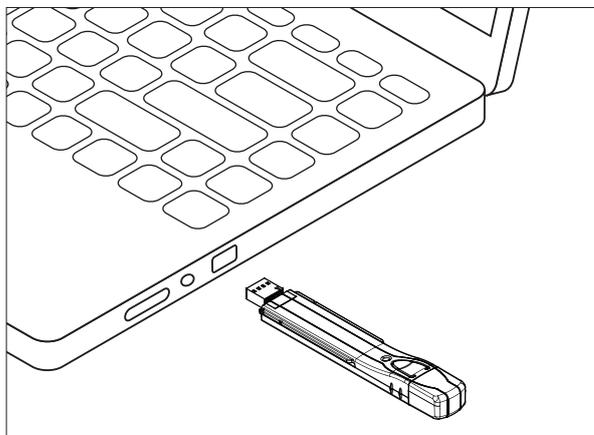


1. Connect USB cable to the USB port of PC
2. Connect the controller.

CAUTION:
Please ensure that only one controller is connected at any time.

Fig 2. Mass programming of ERC using EKA 183A/B connection

Connect EKA Programming key to USB port of PC/Laptop and transfer the file in .erc format from computer to the programming key.



Transferring the file from EKA key to ERC controller:

Fig 2a. Transferring to ERC 11X

Insert EKA 183A(080G9740) into docking station (080G9701).

Place ERC 11X controller on docking station and keep it pressed down until the successful programming indication turns green.

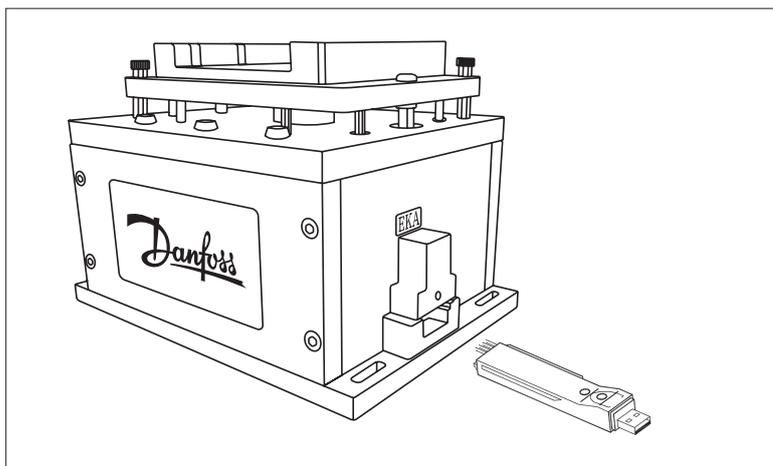
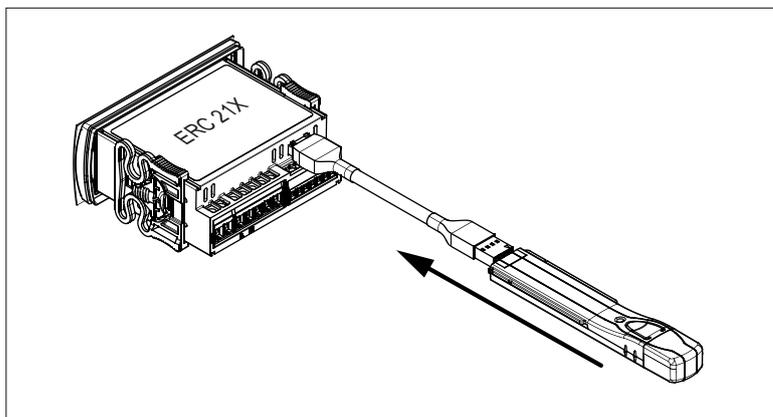


Fig 2b. Transferring to ERC 21X:

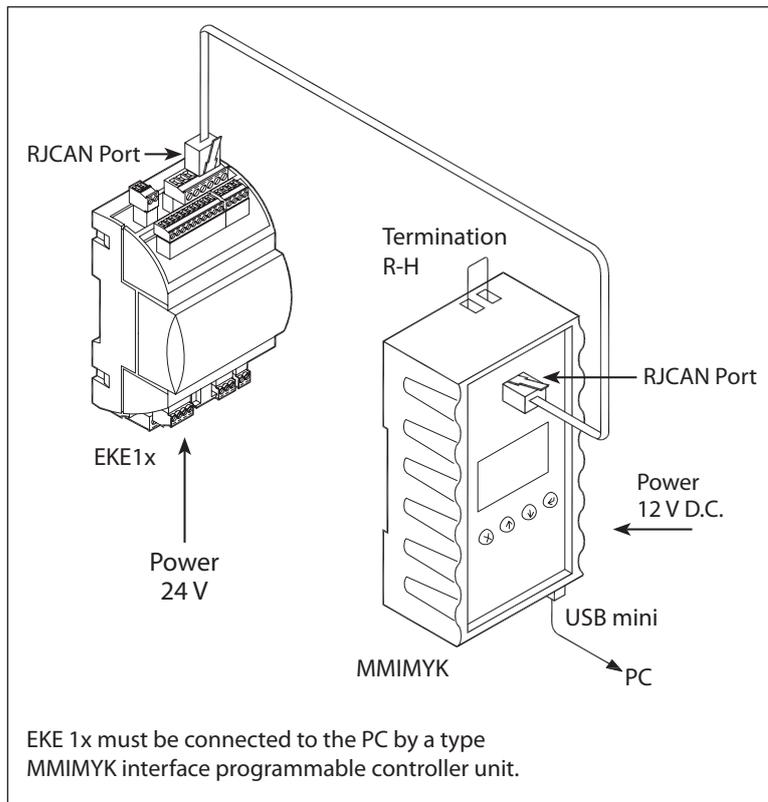
Insert EKA 183B(080G9741) into the TTL port of ERC 21X as shown in image below.

Press the button to initiate transfer of file from EKA 183B to ERC21X.



For more information please refer to EKA 183B(080G9741) instruction sheet provided in the kit.

Fig 3. Connection for EKE using interface type MMIMYK
(Code No. 080G0073)

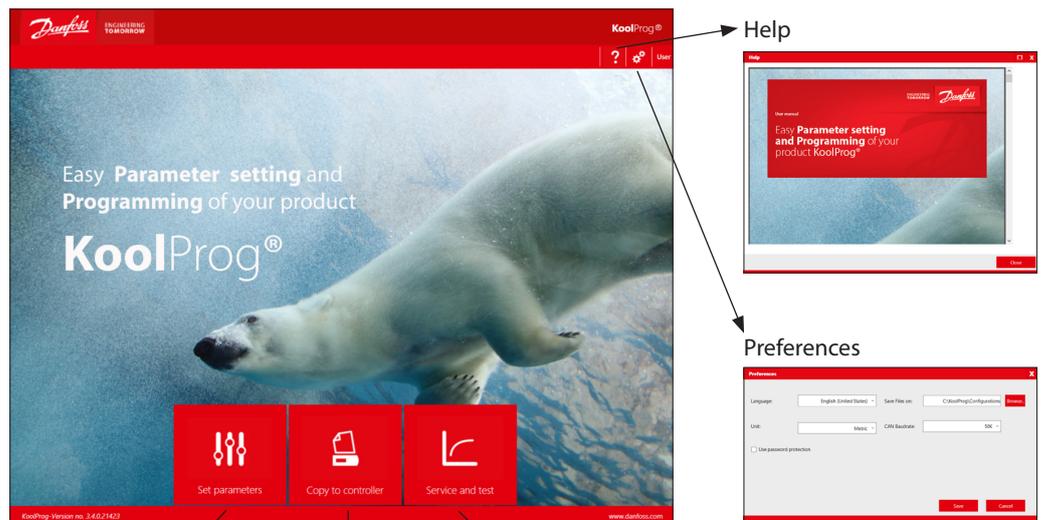


1. Connect USB cable to the USB port of PC
2. Connect the controller. See next page.

5.0 Starting the Program



Double click on the desktop icon to launch KoolProg application

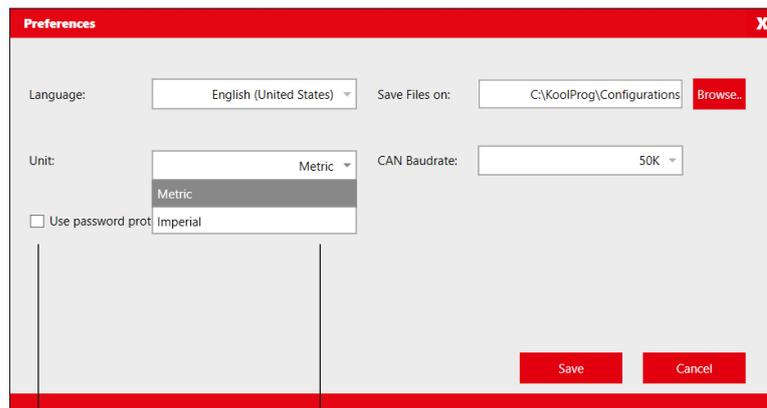


The program's features

To create new parameter files either connecting to controller or offline.

To transfer the saved parameter files from PC to controllers.

To edit/trend graphs of controller parameters in real-time.



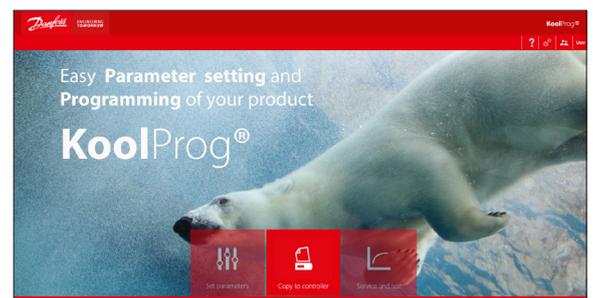
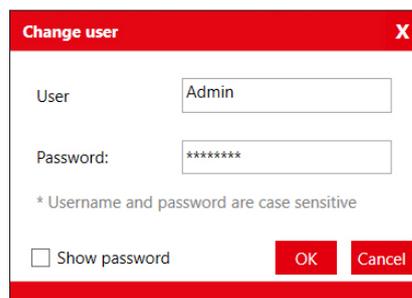
Select the units you prefer to work with: °C and bar (Metric) or °F and PSIG (Imperial).

If the program is to be operated by several individuals, it is possible to specify two different access levels: one with a password and one without a password.

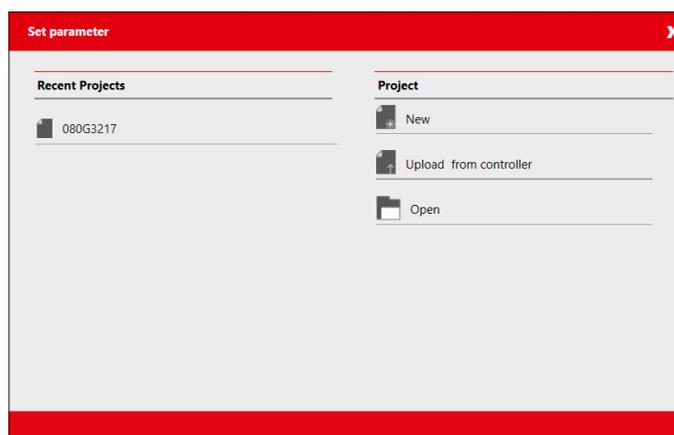
Accessibility

Users with a password have access to all features.

Users without a password have limited access and may only be able to use the 'Copy to controller' feature.

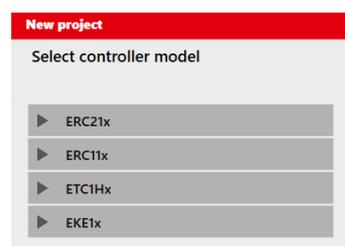


6.0 Set parameters



This feature allows you to configure parameter settings for your application. Click one of the icons in the right column to create a fresh configuration offline or upload from a connected controller or open a saved project. You can see projects you have already created under "Recent Projects."

New



Create new project by selecting:

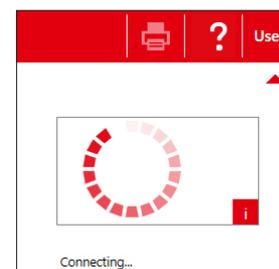
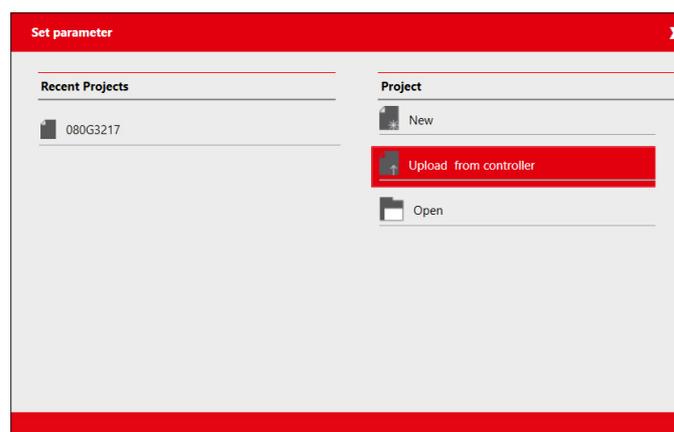
- Controller type
- Part number (code number)
- PV (product version) number
- SW (software) version

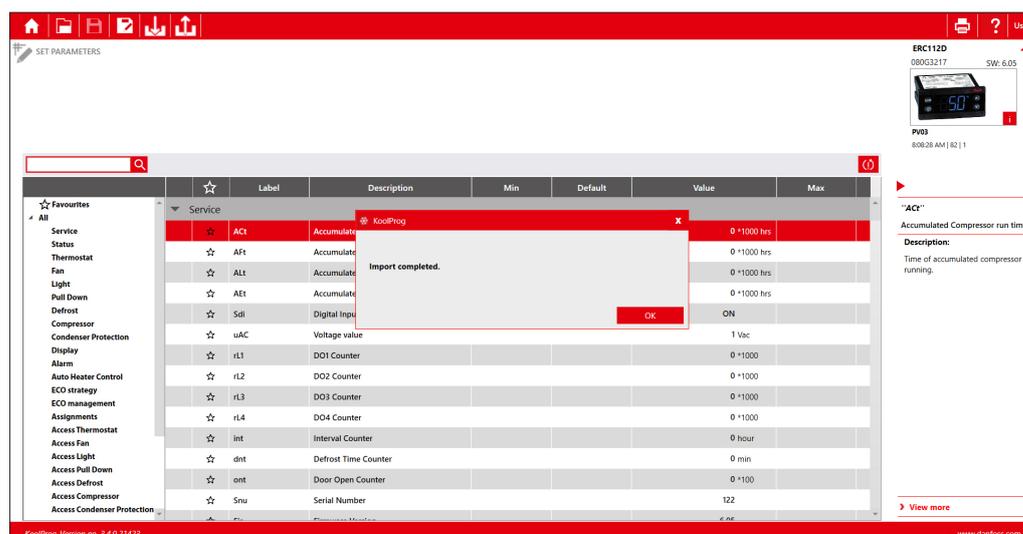
Once you have selected a file, you need to name the project. Click 'Finish' to proceed to view and set parameters.

Upload from controller

Allows to upload a configuration from controller to KoolProg and to modify the parameters offline.

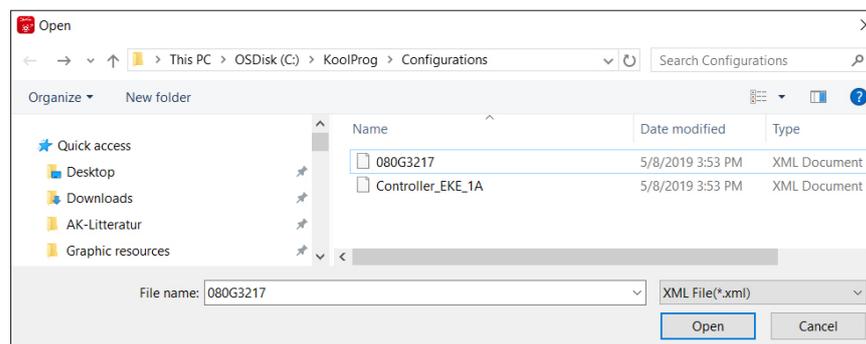
Select "Upload from controller" to import all parameters and its details from the connected controller to the PC.





After the "Import completed" message parameters can be worked upon in offline mode and can write them back to the controller by pressing "Export" button when it is online. Also, a copy of configuration file can be saved onto the PC using "Save" and "Save as" for future use.

Open



"Open" command lets you to open an existing project. Once the command is clicked a window will appear with saved project files list.

All projects are stored here in the folder: "KoolProg/Configurations" by default. You can change the default file saving location in "Preferences" .

You can also put a project that you have received from another source in this folder. Once you have copied it into the folder, you can open it with the "Open" command.

Note: .erc/.dpf format files of ERC/ETC controller are not visible here. A '.erc' or '.dpf' file saved on your PC can be opened in one of the following ways:

1. Select "New Project" and reach all the way to Parameter list view of the same controller model. Select Open button to browse and open .erc/.dpf file on your PC.
2. Select "Upload from controller" if you are connected to same controller online and reach the parameter list view. Select Open button to browse desired .erc/.dpf file and view it in KoolProg.
3. Select "Open" to open any other .xml file of same controller, reach parameter list view screen, and there select Open button to browse and select .erc/ .dpf file to view and edit these files.

Set parameters - continued

Info
Headline

- Home: The "Home" Command will take you back to the Start Menu.
- Open: The "Open" command lets you open an existing project.
- Save: The "Save" command lets you save all the changes in the active project.
- Save as: The "Save as" Command allows you to save your controller settings as a new project.
- Import: This command copies the project settings to the connected controller.
- Export: This command retrieves all the settings of the connected controller and displays them in the current project.

I =
Controller
information.

Informational Photos

The project's data is shown on the left.
The controller the program is connected to is shown on the right.

If the data are identical, these can then be transmitted to the controller.
If they are **not** identical, then these cannot be transmitted. A warning message pops up.

	Label	Description	Min	Default	Value	Max
Service	oEL	OEM Code Low	0	0	0	999
	oEn	OEM Code middle	0	0	0	999
	oEH	OEM Code High	0	0	0	999
	Pv1	Parameter Version	-32768	0	0	32767
Thermostat	SE1	Set point	-100.00	2.00 °C	2.00 °C	200.00
	SP1	Set point adjustment ratio	0.00	0.50	0.50	1.00
	dIF	Differential	0.00	2.00 K	2.00 K	20.00
	HSE	High Set point	-100.00	50.00 °C	50.00 °C	200.00
	LSE	Low Set point	-100.00	-35.00 °C	-35.00 °C	200.00
	ICI	Initial cut in		No	No	
	SP2	Seasonal offset temperature	-25.00	0.00 K	0.00 K	25.00
	DF2	Seasonal Differential	0.00	2.00 K	2.00 K	20.00

Arrow Up/Down

By clicking the arrow, you can hide the two photos and display more parameters in the window. Clicking it again causes the photos to reappear.

Factory reset

This command will reset the controller values to default factory settings.

Arrow Left/Right

By clicking the arrow, you can hide the description of the selected parameters. Clicking it again causes the description to reappear.

View more

This command gives the complete technical description of the controller.

Read value field
= Unsaved setting

Favourites

You can select a number of parameters by ticking the ones you want in the "stars" column.

Afterwards they will be visible in the "Favourites" folder (first column at the top).

Dot Symbol

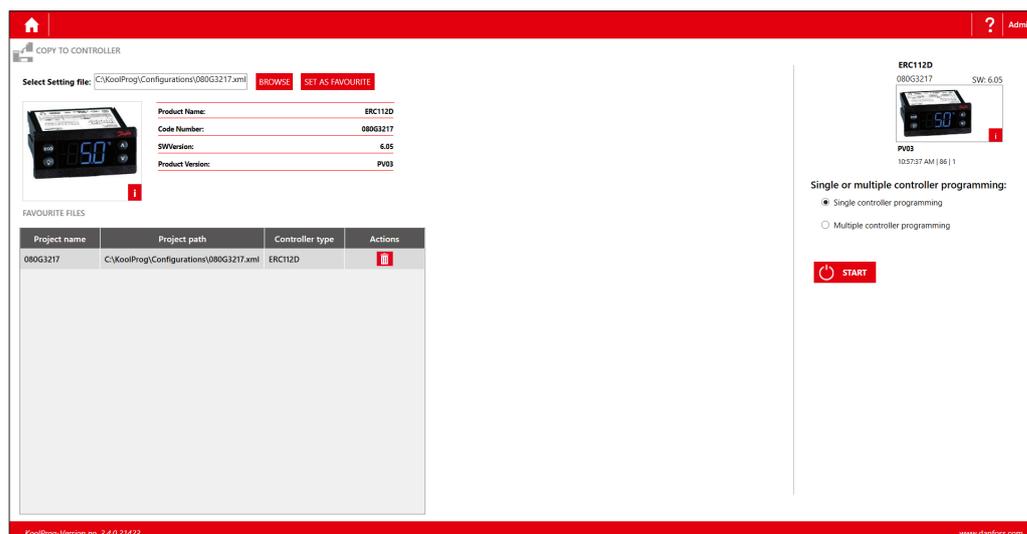
A dot symbol will appear in front of a value if it has been modified and is no longer identical to its factory setting.

Hint - Search Function

You can search for and display a specific parameter with the search function.

Type in the first few letters of the name of the parameter and click "Search".

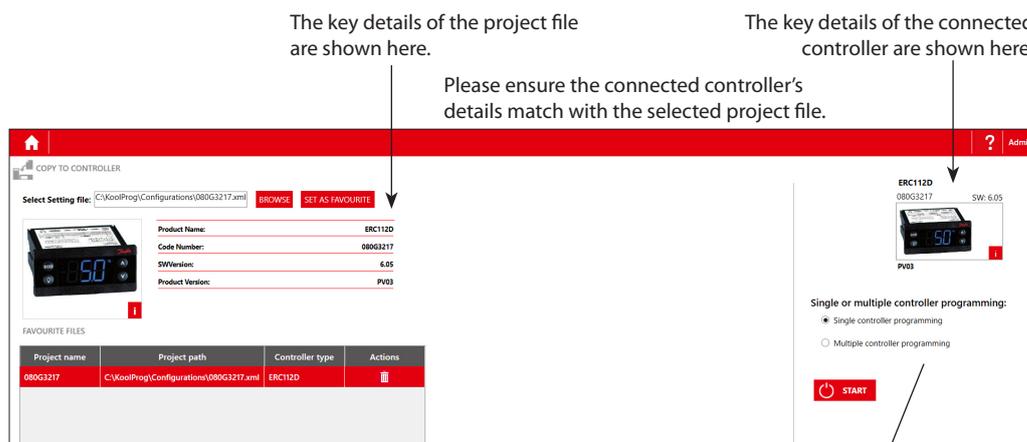
7.0 Copy to controller



Select the project you want to program with the "BROWSE" command.

You can save a project in "Favorite Files" by clicking on "SET AS FAVOURITE" button. The project will be added to the list and can be easily assessed later. (Click on the trash icon to remove a project from the list).

Once you have selected a project, the key details of selected file are displayed.



If the project file and the connected controller match, data from the project file will be transmitted to the controller when you click the "START" button.

The program checks whether data can be transmitted. If not, a warning message pops up.

Multiple Controller Programming

If you want to program multiple controllers with the same settings, use "Multiple Controller Programming."

Set the number of controllers to be programmed, connect the controller and click "START" to program the file - wait for the data to be transferred.

Connect the next controller and click "START" again.

Single or multiple controller programming:

- Single controller programming
 - Multiple controller programming
- Set Counter:
- CountUp Timer(0,...)
 - Countdown Timer(...,0)



Counter: 0



Counter reset to start position ("0" or "Set counter" value).

8.0 Service



Allows to monitor the real time operation of the controller while it is running.

- You can monitor inputs and outputs.
- You can display a line chart based on parameters you have selected.
- You can configure settings directly in the controller.
- You can store line charts and settings and then analyze them.

Open

Allows to view prior line charts you have made from collected data.

Save as

Allows to save a project file containing all of the controller's settings.

Arrow Up/Down

Clicking the arrow allows hiding the photo and the top block of information, so that more space is available on screen for parameters view. Clicking the arrow again makes it reappear.

The screenshot displays the 'SERVICE TEST' interface. At the top, there are navigation icons for Home, Save, and Open. Below this, there are sections for Readouts (Air temperature, Evaporator temperature, Condenser temperature, D11 status), Outputs (Compressor relay, Defrost relay, Fan relay, Light relay), and Active alarms (E29, E27). A central configuration table is visible, and on the right, there are panels for 'ERC214' and '061' with detailed descriptions of predefined applications.

Label	Description	Min	Default	Value	Max
o01	Predefined applications			App5	
o06	Sensor type		n10	n5	
o36	DD4 config		ALA	ALA	
r00	Temperature Setpoint	-100.00	-24.00 °C	-10.00 °C	200.00
r01	Differential	0.10	2.00 K	3.00 K	20.00
r02	Min set point limit	-100.00	-26.00 °C	-22.00 °C	200.00
r03	Max set point limit	-100.00	-20.00 °C	-10.00 °C	200.00
r04	Display offset	-10.00	0.00 K	0.00 K	10.00
r05	Display Unit		°C	°C	
r09	Calibration of Sair	-50.00	0.00 K	0.00 K	50.00
r13	Night Set back	-50.00	0.00 K	0.00 K	50.00
r40	Offset reference displacement	-50.00	0.00 K	0.00 K	50.00

The Trend Feature

If you want to chart the trend for a measurement, you can select what you want to view from this table. Tick the box of any parameter you would like to include in the chart. You can select a maximum of 10 parameters.

Active Alarms

This shows the active alarms at the current time. Description of the alarm appears on the right of the table when an alarm is selected.

Line Chart

Click the "Line Chart" button to switch over to the trend view. You can begin charting any measurements you want in the trend view.

Trend Charts

The program only saves data if the "Save chart" box is checked. If you want to save the collected data in another file format, use the "Save As" command. This enables you to save data in either a .CSV or .PNG file format. After saving an image, the chart can be viewed later in selected file format.

You can change how often you want to record a value by changing the log interval.

You can change the duration for which the data has to be collected by changing the log period.

You can start or stop data logging by clicking the corresponding buttons.

You can set the time interval for the time labels on the x-axis by modifying 'Label'.

You can define the time period shown on the screen before the view refreshes by changing the Zoom Level.

You can stop a parameter from trending by unchecking the box in front of that parameter.

Log parameter	Menu Code	Color	Min	Max	Value
<input checked="" type="checkbox"/> Air temp (°C)	Air	Red	0.27	5.75	3.06
<input checked="" type="checkbox"/> Evaporator1 temp (°C)	Et1	Green	-0.81	6.16	3.46
<input checked="" type="checkbox"/> Evaporator2 temp (°C)	Et2	Blue	-1.58	6.08	4.09

9.0 Unknown controller support
(Only for ERC 112 & ERC 113 controllers)

If a new controller is connected, the database of which is not already available in the KoolProg, you can still connect to the controller in online mode. Select either "Upload from Controller" in set parameters or "Service and test" to view parameter list of the connected controller. All new parameters of connected controller will be displayed under separate menu group "New Parameters". User can edit the parameter settings of connected controller and save the setting file on PC to mass program using "Programming EKA 183A (Code no. 080G9740)".

Note: saved setting file created in this way cannot be reopened in KoolProg.

Fig 4a. Unknown controller connection under "Upload from controller":

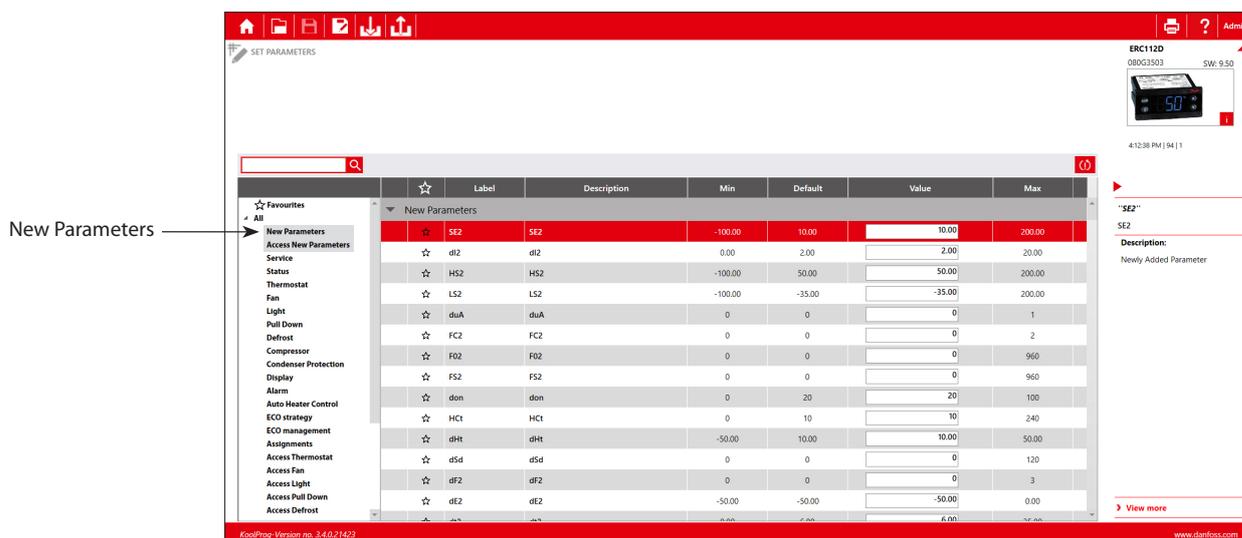
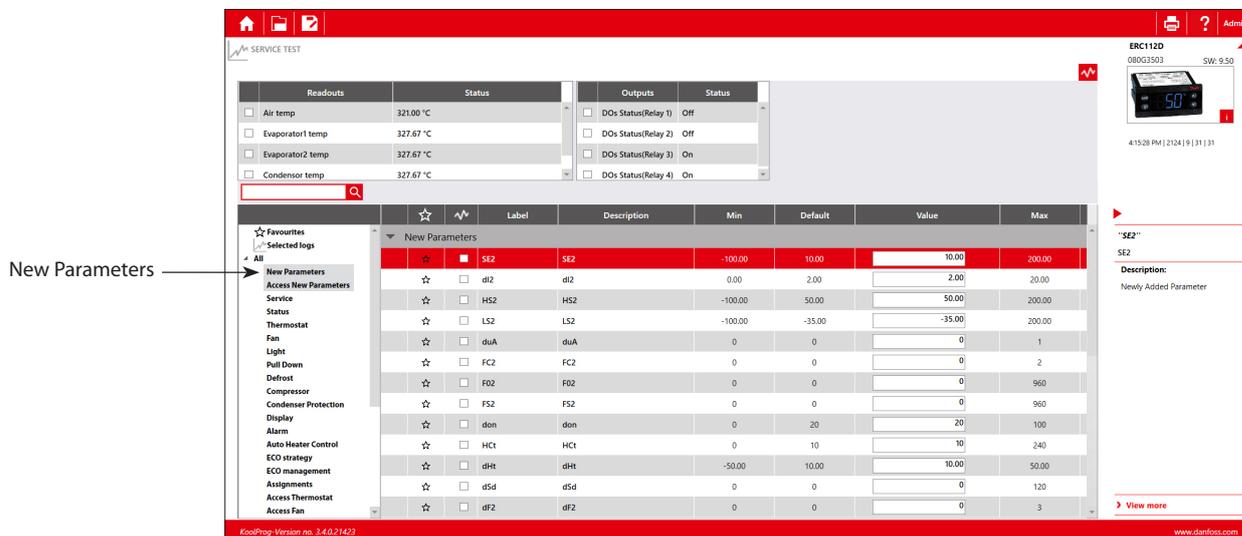


Fig 4b. Unknown controller connection under "Service and test":



Please contact your nearest sales representative for further assistance.

ENGINEERING
TOMORROW

