

Technical brochure

EKA 183A Programming key



EKA 183A is the tool allowing fast installation of the EKC and ERC refrigeration controllers both in field and in production, thanks to the easy setting of the parameters with a simple plug and play action.

Features EKA 183A

- OEM and Service tool for quickly setting up a controller
- Bidirectional communication from and to the connected controller
- USB connection to PC

General features

EKA 183A is used to copy setting to an EKC and ERC controller. It can be used to copy settings from one controller to another controller of the same type. i.e. the same code number and software version.

Note: *In case of ERC 10x and ERC 11x, it can be used for setting a controller only through the special docking station, not with the direct connection explained in this document*

Can be used for:

EKC 102, EKC 202, EKC 204 and AK-CC 210.
EKC 3xx (but not EKC 301), EKC 4xx, EKC 5xx, AK-CC 450 and AK-CC 550.

ERC 211, ERC 213, ERC 214.

ERC 10x and ERC11x only through docking station. Set the Data Transfer "MODE=A" in this case as described in the last page.

Function

Principle

EKA 183A is put into the controller. The controller is connected to the mains.

Data can be copied from the programming key to the controller or vice versa by operating the push button.

Pre-programming

EKA 183A is put into the PC's USB port. The actual file is then set. In case of EKC the setting are done using the "Microsoft Excel" program. (See next page).

Rapid data transfer

For OEM use, the programming key can be set so that the data transfer starts at the same time as the programming key is pushed into the controller.

For EKC 102, EKC 202, EKC 204 and AK-CC 210, a connection of 230 V is not required for the controller – the power supply to the copying key and the necessary part of the controller can be provided via a USB cable.

LED

1. The LED will flash yellow

when the programming key is put into the controller. Here it is checked whether the data can be transferred.

2. Shortly afterwards

the LED constant light up yellow and the data transfer can start.

3. and 4.

transfer of data:

- pushing the button briefly (1 sec.) will transfer data to the controller (green LED flashes).
- a long push (at least 4 sec.) will transfer data from the controller to the programming key (red LED flashes).
- (The transfer of data to the controller will start immediately (i.e. without push the button), if this function has been activated. See page 4.)

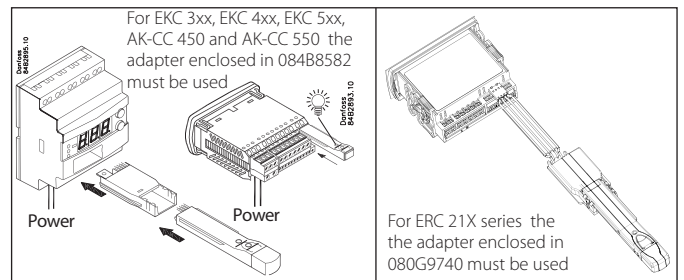
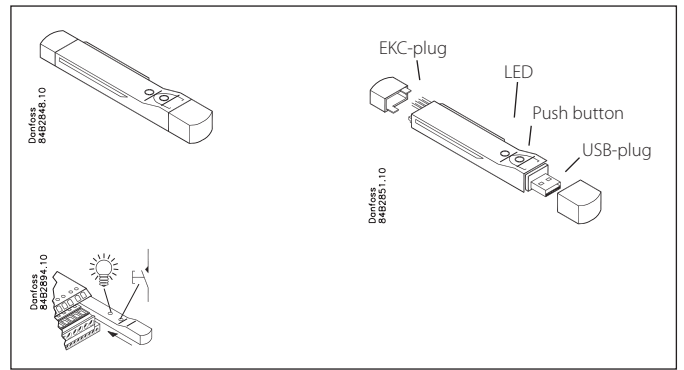
5. the LED light up constant

the transfer has finished.

If the LED flashes alternately red and green (and remains), an error has occurred in the transfer. Put the programming key into the PC and read the error code.

The two usual errors will be:

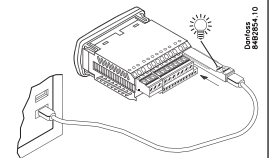
- the controller's order number and software version do not match the file that you are trying to copy to the controller.
- the programming key already contains a write-protected file of the type you are trying to extract from the controller.

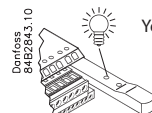
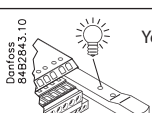
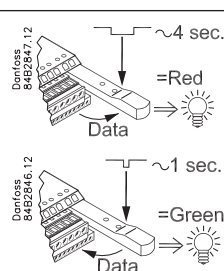
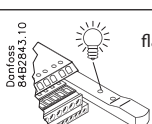
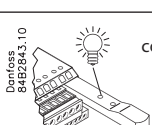


OEM feature: for EKC and AK-CC series only, not for ERC series.

Power supply to front mounted controllers can be supplied via a USB cable. However this is only possible for marked controllers since the function is available from the middle of 2009. All other controllers must be connected to the power supply for programming to be possible. The marking can be found on the controller's packaging and on the controller itself:

- "Prepared for OEM Progr. Tool" can be found on the packaging
- An 8-mm round yellow sticker can be found on the controller next to its connection point.



<p>1. Flashes (checking)</p>	 <p>Yellow</p>
<p>2. Light up constant (await push)</p>	 <p>Yellow</p>
<p>3. Push</p>	 <p>~4 sec. =Red Data ~1 sec. =Green Data</p>
<p>4. Flashes (transfer data)</p>	 <p>flashes</p>
<p>5. Light up constant (transfer finished)</p>	 <p>constant</p>

All parameters are transferred

All the set parameters are transferred. This also applies to the Main Switch, refrigerant type, application number, address, etc. There are no exceptions.

Principles and settings via PC

The programming key can only contain one file for each order number, but there is room for many order numbers.

By limiting it to one file, you control what is copied. Numerous files with different settings, e.g. settings for cooling, frost, etc., will not be mixed up.

When the file is transferred to a controller, the programming key will check both the order number and the software version.

Both the order number and the software version on the controller must match the file on the programming key, otherwise the transfer will not work. The LED will flash to indicate an incomplete transfer. In order to progress with an incomplete transfer, you must have a file that corresponds to the one in the controller. But before this, you must take into account the file that is already on the programming key.

- If the file is write-protected, you cannot copy another one to the programming key. The LED will indicate this by flashing.
- If it is not write-protected, it will be overwritten.

You can move the file to a PC, making it accessible later.

And then we go back to the incomplete transfer. If you have a file with the correct software version, it must be copied over onto the programming key and then to the controller.

- If you do not have the file, and want to save it for later, you can copy the file from the controller to the programming key.

If you have several files for the same controller, we recommend that you save them in different folders, so that they are kept apart from each other. The programming key can only accept files if the name is: **XXXX.EKC** for EKC controller and **XXXX.ERC** for ERC controller, where **XXXX** is the last four digits in the order number, e.g. **084B8522**.

Setting with "Microsoft Excel" program

This procedure is valid only for EKC controller.

The file is on the programming key.



084B8942_xxx.xls

(xxx = software version)

Open the file and enable Macros.

The control screen is shown below.

At the bottom, you can save the file as a "Read-Only" file.

If you forget to do this, the file will be overwritten if you do a "long push" on the programming key, thus transferring data from an EKC to the programming key.

Ordering

Type	Description	Code no.
EKA 183A	Programming key	084B8582
EKA 183A	Programming key + adapter for ERC21x	080G9740

8020.ekc 8522.ekc 084B8942.xls config.cfg EKA183A.log

An example of the contents of a programming key.
The two first files (and similar types) will not be available before they have been uploaded to the programming key.

EKA 183A - Parameter editor

Ver. 1.02

Open Parameter file

File: C:\8520.ekc

Software version: 2.07

Model number: 8520 0

Text	Value	Min	Max
--- Cutout °C	1	-50	50
r01 Differential	1	0.1	20
r02 Max cutout °C	1	-49	50
r03 Min cutout °C	1	-50	49
o17 Disp. S4 %	10	0	100
r04 Disp. Adj. K	1	-20	20
r05 Temp. unit	1	0	1
r09 Adjust S4	1	-10	10

Edit parameter

Save file

Save file as "Read Only"

Data transfer

Two methods can be selected for transferring data:

- **A:** data transfer from the programming key to the controller occurs at the same time as the programming key is pushed into the controller.
- **B:** the unit is checked and the transfer takes place when the button is pushed. (B= factory setting).
- **P:** reserved function.

Modes vary based on product and connected device.

Please pay attention to choose the following modes, while the Programming key is connected.

Product Type	Mode Settings for Programming Key	
	Plugged in Docking Station	Connected to ERC product directly
ERC 10X Series	Mode A	Not applicable
ERC 11X Series	Mode A	Not applicable
ERC21X Series	Not applicable	Mode B

Connect the programming key to a PC and find the file "Config.cfg".

The file can be opened using the "WordPad" program.

Set the MODE line to either A or B.

```
## Sw. version. 1.xx
# Advanced users only
# EKA183A configuration file
#
# EKA183A configuration file
#
# MODE=A: EKA183A will automatically start uploading of parameters to EKC.
# MODE=B: EKA183A function is controlled by the push button.
# MODE=P: EKA183A is controlled by "EKA183A PC Toolkit".
#
MODE=B
# End of configuration file
```

If the transferred data has to be used as "New factory setting", add the following text: **FAC = Y**

```
# MODE=P: EKA183A is controlled by "EKA183A PC Toolkit".
#
MODE=B
FAC=Y
# End of configuration file
```

Error and status messages

If the LED flashes after a data transfer, the transfer is unsatisfactory.

Look at the error code in the log.

```
Description of errors and messages found in log:
001 Connection initialized to EKC, mode = button action
002 Connection initialized to EKC, mode = auto
003 Connection initialized to EKC, mode = PC/HID
004 Starting to copy from EKC to Programming Key
005 Done copying from EKC to Programming Key
006 Starting copy from Programming Key to EKC
007 DONE copy from Programming Key to EKC
008 A new configuration has been created

100 Unspecified E1 error
101 E2 error. Mode set to PC action, but no PC is connected
103 E2 error. Mode not set to BUTTON, AUTO or PC
103 E2 error. Trying to upload to a illegal PNU number.
Filename and line number specified in log
104 E2 error. Illegal value to upload, eg. out of range.
Filename and line number specified in log
105 E2 error. Trying to write "read only value".
Filename and line number specified in log
106 E2 error. [PNU] section not found in parameter.
Filename specified in log
107 E2 error. Syntax error in PNU line.
Filename and line number specified in log
108 E2 error. No parameter file found to upload
109 E2 error. No configuration file found
110 E2 error. Syntax error in configuration file
111 E2 error. A parameter file for the current EKC is already
present and it is write protected
112 E2 error. A parameter file for the connected EKC exists, but
the software version in the file is different from the connected EKC
113 Not enough free space left on device
```

Read the log

Connect the programming key to a PC and find the file "EKA183A.log". The file can be opened using the "WordPad" program. It displays the following information: No. of last event (here, line 23). The last event will always be the last line. If there are more than 50 events, the first ones will be overwritten, so that the last 50 can always be seen.

```
Latest line:23
001;00:00 01-01-00;8520;2.0.5;0;;
004;00:00 01-01-00;8520;2.0.5;0;;
005;00:00 01-01-00;8520;2.0.5;0;8520-000.ekc;
001;00:52 01-01-00;8020;1.1.6;0;;
001;01:03 01-01-00;8020;1.1.6;0;;
004;01:03 01-01-00;8020;1.1.6;0;;
005;01:03 01-01-00;8020;1.1.6;0;8020-000.ekc;
001;02:04 01-01-00;8020;1.1.6;0;;
006;02:04 01-01-00;8020;1.1.6;0;;
107;02:04 01-01-00;8020;1.1.6;0;8020-000.ekc;182
001;02:07 01-01-00;8020;1.1.6;0;;
006;02:07 01-01-00;8020;1.1.6;0;;
107;02:07 01-01-00;8020;1.1.6;0;8020-000.ekc;182
001;02:09 01-01-00;8020;1.1.6;0;;
004;02:09 01-01-00;8020;1.1.6;0;;
005;02:09 01-01-00;8020;1.1.6;0;8020-000.ekc;
001;03:22 01-01-00;8020;1.1.6;0;;
004;03:22 01-01-00;8020;1.1.6;0;;
005;03:22 01-01-00;8020;1.1.6;0;8020-000.ekc;
001;00:01 01-01-00;8520;2.0.5;0;;
004;00:01 01-01-00;8520;2.0.5;0;;
005;00:01 01-01-00;8520;2.0.5;0;8520-000.ekc;
```

- The first number is a code.
 - Numbers below 100 are event codes.
 - Numbers above 100 are error codes.
- The next number is the date and time of the event (It is the time set in the EKC that is used).
- Again, the next number is the last 4 digits of the controller's order number.
- Then comes the software version — e.g. 2.05
- And the address set in o03.
- Then the recipient's data. — Order number, address and "EKC".
- If the event is an error, the last number in the line (e.g. 182) will be information for Danfoss about where the error has occurred.

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without consequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.