ENGINEERING
TOMORROW

Danfoss

October 2020

Cooling and Industrial Automation
Danfoss Tech Insider

Introduction

Danfoss Tech Insider keeps you well informed on the latest news and updates in Danfoss Cooling and Industrial Automation. The content is intended to give a quick overview of core technical news and updates in our product portfolio, including links to relevant documentation and more information. Danfoss Tech Insider is sent out on a monthly basis to ensure you are always up to date with the latest innovations and changes made to Danfoss products and solutions. We hope you will enjoy reading Danfoss Tech Insider!

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Cooling United Live Sessions are Available

Cooling United Live has concluded. We had a comprehensive lineup of informative and engaging sessions.

Did you miss the event? Or do you want to watch some of your favourite sessions again? Don't worry – we've recorded the entire event, so you can watch or re-watch all sessions.

Sign up and sign in now to start watching: **Register here**

Temperature Sensors for Industrial Processes

The Danfoss temperature sensors for industrial applications are designed for maximum reliability with respect to both precision and reaction time. Special care has been put into the design of the sensor in relation to the reaction time. On top of this, the sensor construction ensures minimum radiation of heat, which results in a measurement very close to the actual temperature of the media.

For more information visit our **website**

Key highlights

- High precision measurements from – 50° C to 800° C
- Pt 100 / Pt 1000 resistance element, NTC / PTC and Thermocouples
- Precise and flawless signal transfer
- High degree of protection against moisture

# Power Connection Improvement on Large Scroll Compressors

Within the framework of continuous improvement, Danfoss Commercial Compressors has decided to modify the power connection on large scrolls. To facilitate the connection, three axes will be implemented:

- Extended use of large Tblock 80x80mm to a wide variety of large scroll compressors. With more room between the ring terminals and the Tblock edges, the connection will be more comfortable.
- Implementation of studs and Twolok® nuts instead of a screw to connect the ring terminals. That will make the connection easier and will reduce markedly the necessary time of the operation.
- On earth connection, replacement of the nut+ washer by one Twolok® nut. Having only one part to handle will save time.

All these modifications will have no impact on the customer tooling as the nuts' overall dimensions will remain unchanged.
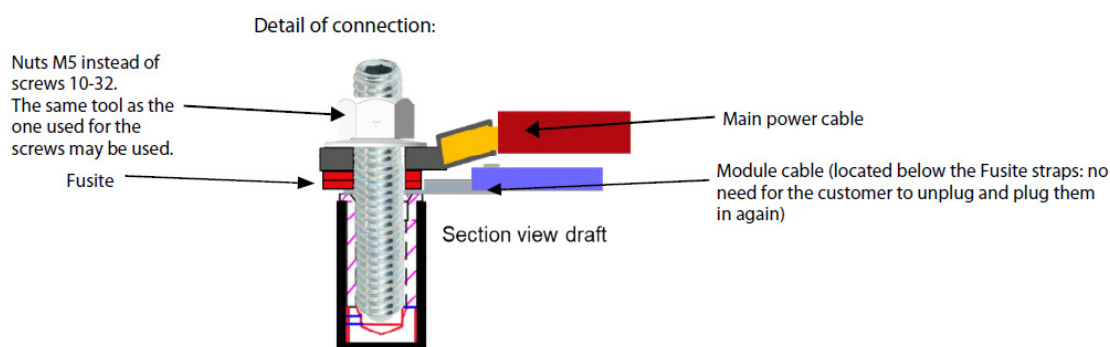
Standardization of the large Tblock on the whole large scroll range
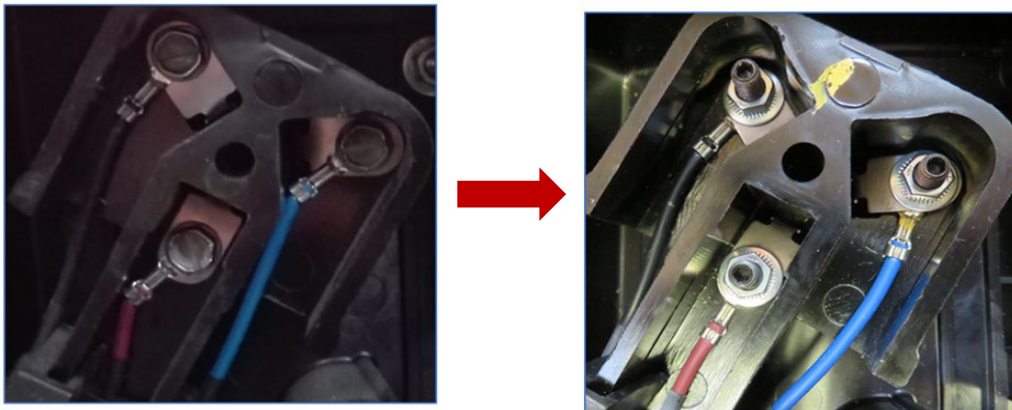
New power connection: studs and nuts instead of screws

The studs´ outer diameter will be 5 mm (0,197 inch) instead of the screws´ diameter of 4,83 mm (0,19 inch)

Detail of Connection

Detail of connection:

Nuts M5 instead of screws 10-32. The same tool as the one used for the screws may be used.

Fusite

Main power cable

Module cable (located below the Fusite straps: no need for the customer to unplug and plug them in again)

Section view draft
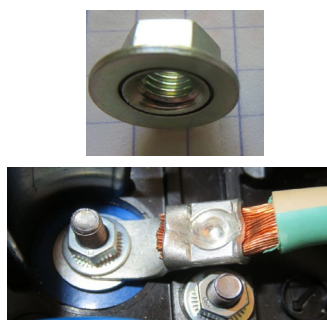
Simplification of ground connection
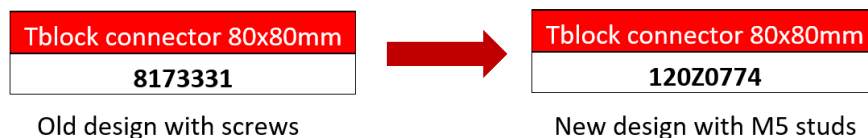
Current parts & assembly   Future parts & assembly

A new spare part for the Tblock, reference 120Z0774, has been created to replace 8173331.
The new Tblock design with stud can perfectly be used to replace an old design Tblock (with screws).

Tblock connector 80x80mm		Tblock connector 80x80mm
8173331		**120Z0774**

Old design with screws   New design with M5 studs

Affected products

Both power connection improvement and ground connection simplification:

- SY240-300-380 all motor codes
- SH180-240-295-300-485 all motor codes
- DSH240-294-295-381-485-600 all motor codes
- DSF270-325-485-530 all motor codes
- CH485 code 4
- VSH170 / VZH170 code J

Ground connection simplification only:

- S115-125-160-175-185 all motor codes
- SZ148-161 code 3 and 6
- MLZ/MLM116
- CH290-4
- VZH170 code G and H

Evaporator Controller EKE 400 1.1 - New Version
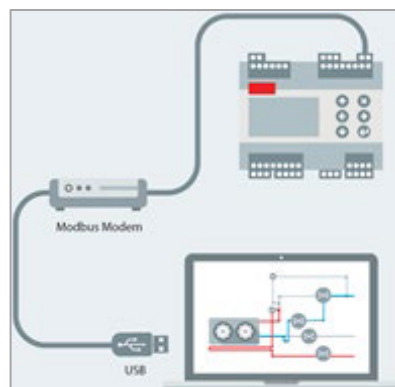
We are pleased to announce the second release of the Danfoss EKE 400 Evaporator Controller.

The EKE 400 is specifically designed to control industrial refrigeration evaporators – in small as well in large systems. However, the EKE 400 is also relevant in some Food retail and Commercial refrigeration applications, in particular in CO2 systems with hot gas based defrost.

Based on a trusted Distributed Control System (DCS), advanced control algorithms, and wizard for quick set-up and commissioning EKE 400 significantly reduces controls installation time and costs and provides operational safety and efficiency.

A new CoolConfig software tool will soon be released for easy and fast configuration of multiple EKE 400 controllers.

The EKE 400 evaporator controller manages the complete operation in cooling and defrost mode for optimal operation and defrost sequence (Ammonia, CO2, and HFC/HCFC based systems). It's applicable for defrosting both flooded evaporators and DX evaporators and supports multiple defrost methods, including hot gas defrost (pressure control/liquid drain), electrical defrost, and water/brine defrost.

An Easy-to-use Wizard enables quick set-up of key parameters and efficient commissioning, and the predefined process sequence ensures reliable operation and defrost. The EKE 400 is especially designed to get the best performance from Danfoss valves, however, it also works with non-Danfoss valves.

EKE 400 includes Modbus communication which allows integration to central PLC system. However, it can also be used without central PLC as standalone.

Application specific evaporator controller – save time and money

- Dedicated for industrial refrigeration
- Flooded ammonia/CO2/HCFC/HFC
- Direct expansion (DX) ammonia/CO2/ HCFC/HFC
    - Superheat Control by
        - Fixed Superheat reference
        - Load defined reference (LoadAP)
        - Minimum Stable Superheat (MSS
    - Modulating Thermostat (MTR) or simple ON/OFF
- Media temperature control of suction line valve with motorized valve (Danfoss type ICM/ICAD or similar) or with servo valve (Danfoss type ICS/CVE /ICAD or similar)

- Pressure control of suction line valve with motorized valve (Danfoss type ICM/ICAD or similar) or with servo valve (Danfoss type ICS/ CVE2/ICAD or similar)
- Modulating Thermostat (MTR) by modulating the valve (Danfoss type AKV/AKVA) or similar in the liquid line
- Defrost
    - Support of Multiple Defrost methods
        - Hot Gas defrost by pressure
        - Hot Gas defrost by liquid drain
        - Defrost by water or brine
            - Individual defrost schedules by single weekdays, Saturdays and Sundays

Product sales code numbers

| Sales code	Description
080G5003	**EKE 400 with HMI** 85 – 265 V AC, 50/60 Hz
080G5004	**EKE 400 with HMI** 20 – 60 V DC and 24 V AC ± 15% 50/60 Hz
080G5005	**EKE 400 without HMI** 85 – 265 V AC, 50/60 Hz
080G5006	**EKE 400 without HMI** 20 – 60 V DC and 24 V AC ± 15% 50/60 Hz

With HMI

Without HMI
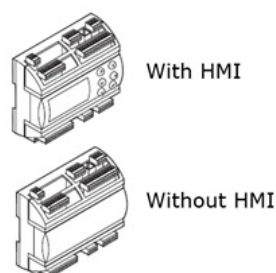
Learn more – and get in touch

To learn more about how the new EKE400 can save time and money during installation and how this standardized solution can improve operational safety and efficiency, visit the link below and contact your local Danfoss representative.

https://www.danfoss.com/en/products/electronic-controls/dcs/evaporator-control-eke-400/

Update of Electronic Controllers MCX15B2 and MCX20B2
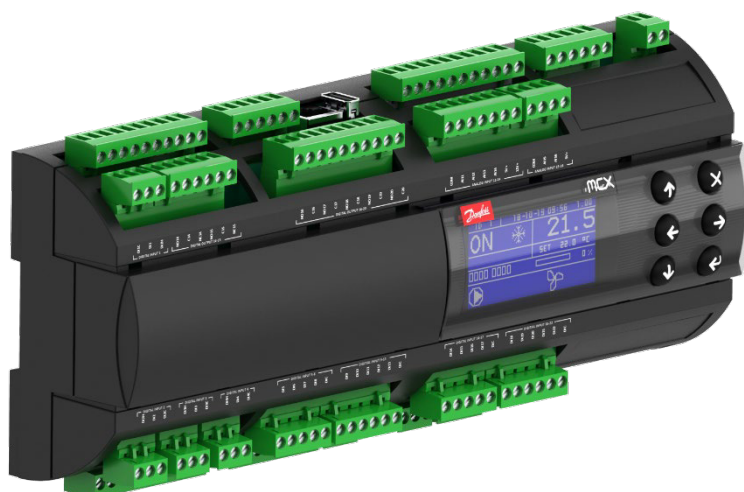
Danfoss is pleased to announce the release of MCX15B2/MCX20B2 programmable controllers.
They enhance performances of the high-end range MCX controllers and improve connectivity in terms of WEB server and TCP protocols.

Some of the key benefits of MCX15B2 and MCX20B2 are:

Enhanced Performance

- Increased memory capacity and execution speed thanks to the state-of-the-art microprocessor and memory
- Safe remote software upload always granted
- Improved I/O accuracy and configurability

Embedded Connectivity

- CAN bus protocol communication
- Up to 2x RS485 MODBUS port
- Ethernet with WEB Server and MODBUS TCP
- USB for easy software upload and datalogging

Cyber Security

- HTTPS and TLS protocols
- Certificates handling
- Access control: users and password requirements, and up to 4 different access levels

Reduced Complexity

- Ultra-wide range 24 -110 -230 VAC power supply
- No need of external power supply to 0/10 V output
- Digital inputs are designed to operate either as clean contact or 24 VAC sensing

For full details on capabilities and characteristics, please see the **Datasheet, User Guide** and **Installation Guide**

MCX15/20B replacement

The new MCX15/20B2 is identified by new part numbers, which will replace the existing MCX15/20B.

The cross-reference table is here below (part numbers deleted are no longer available)

MCX15/20B Part Numbers		Phase out status	MCX15/20B2 New Part Numbers		Availability
MCX15B			**MCX15B2**		
080G0130	MCX15B, 24V, I	Phase out completed Product not available	080G0327	MCX15B2, RS485, S	September 2020
080G0132	MCX15B, 24V, RS485, I	Phase out completed Product not available			
080G0036	MCX15B, 24V, LCD, RS485, S	Phase out started*	080G0328	MCX15B2, LCD, RS485, S	September 2020
080G0127	MCX15B, 230V, LCD, RS485, I	Phase out completed Product not available			
MCX20B			**MCX20B2**		
080G0142	MCX20B, 24V, RTC, I	Phase out started*		MCX20B2, 2xRS485, I	September 2020
080G0145	MCX20B, 230V, RS485, RTC, I	Phase out ongoing* Stock available			
080G0146	MCX20B, 24V, 2XRS485, RTC, I	Phase out completed Product not available			
080G0057	MCX20B, 24V, LCD, 2XRS485, RTC, S	Phase out started*	080G0330	MCX20B2, LCD, 2xRS485, S	September 2020
080G0139	MCX20B, 230V, LCD, RS485, RTC, I	Phase out started*	080G0331	MCX20B2, LCD, 2xRS485, I	September 2020
			080G0332	MCX20B2, LCD, 4xSSR, 2xRS485, I	January 2021

MCX15/20B Phase out

Expected last order: end of February 2021.

Expected last delivery: end of June 2021

After this, a limited number of pieces will be available only for service until stock is depleted

The replacement of version B with B2 is facilitated because:

- The application software is 100% compatible,
- The power supply of each B2 variant ranges from 24Vac to 230Vac,
- The Input/Output layout is very similar.

But there are also some differences that must be taken into consideration:

From Version B to B2 - Hardware compatibility

Even if we have been focused in minimizing the differences, there are few changes in the layout of input/output and in the type of relays.

Therefore, when you are replacing version B with B2, you must modify slightly the wiring connections in the electrical panel and must be aware that 4 out of 6 changeover contacts (NC-NO) of relays are no longer available, being substituted by NO contacts.

From Version B to B2 - Application Software compatibility

The application software for MCX15/20B is fully compatible with B2 provided that the 4 NC contacts mentioned above are not used.

To manage the extra-feature of MCX15/20B2 which were not present in the MCX15/20B like datalogging, Modbus TCP and web server simulator, it is required the new MCXDesign/MCXShape version 4.11. The Release Candidate is available in the **MCX website** to registered users for download.

Note: Due to the faster execution time of MCX15/20B2, unexpected behavior might be seen in the application software, though only if it was developed in C++ without following the best practice of not relating any software feature to the loop time. If this unexpected behavior occurs, the software will need to be decoupled from the faster loop time.

Optyma™ Plus Condensing Unit - How to Videos

Have a look at below videos, explaining some of the commonly asked questions for Danfoss Condensing Units:

- How to **start up** a Danfoss condensing unit the first time. **Quick Guide**

- Change of controller set points, make adjustments or restore the controller to the factory default settings. Use this **link**

- How to run **emergency wiring** on an Optyma™ Plus or Plus INVERTER condensing unit.

Note: This is only a short-term fix as the compressor can be damaged due to running for longer periods with a lower back pressure.

Up-coming Webinars

Introduction to Danfoss Product Store – in English

- [Thursday 22nd October at 12:00 – 12:30 CET](#)
- [Tuesday 3rd November at 14.00 -14.30 CET](#)

Danfoss Product Store – Your source for product information 24/7 - DK/SE/NO

- [Tuesday 3rd November at 11:00 – 11:30 CET](#)
- [Thursday 5th November at 13:30 – 14:00 CET](#)

Introducing the new Case Controller AK-CC 55 with Bluetooth connectivity – in English

- [Friday 13th November at 10:30 – 11:00 CET](#)
- [Wednesday 18th November at 13:30 – 14:00 CET](#)

Choose the right component for your CO_2 application – in English

- [Tuesday 24th November at 10:30 – 11:00 CET](#)
- [Monday 30th November at 13:30 – 14:00 CET](#)

Install and calibrate the new Danfoss gas detectors– in English

- [Thursday 3rd December at 14:00 – 14:30 CET](#)
- [Tuesday 8th December at 10:30 – 11:00 CET](#)

Details for Additional Information

UK/IE

[Cooling United Support Hub](#)
[Support Made Easy](#)
customerservice.uk@danfoss.com
Customer Service UK tel: 0330 808 6888
customerservice.ie@danfoss.com
Customer Service IE tel: 1 800 816 868

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