



February 2025 | Danfoss Climate Solutions for cooling

Cool Update



Introduction

Danfoss Tech Insider keeps you updated with the latest news on the cooling and industrial products portfolios from Danfoss Climate Solutions. 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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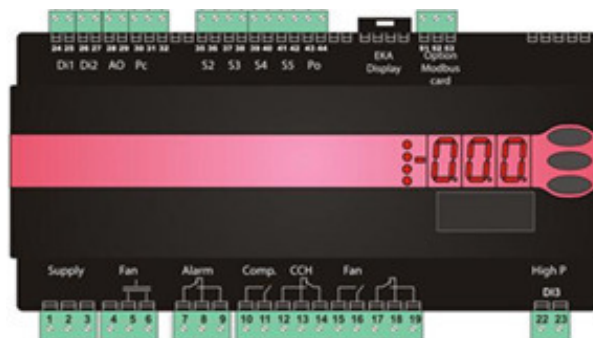
Optyma™ Plus Condensing Unit Controller Software Update 3.70

As part of an ongoing controller software upgrade, Danfoss is pleased to share with you the latest software update, with a detailed explanation of the changes. This aim is to ensure and track all visible changes to our packaged Optyma Plus condensing unit.

Description

Danfoss offers Optyma Plus product lines for A1 and A2L+A1 refrigerants in the European Union market. One key differentiator from competitors is a reliable, efficient, and easy-to-use controller offering several functionalities:

- **Easier and quicker start-up:** just two steps (refrigerant and pump-down settings).
- **No need to connect a service gauge** to read suction/discharge temperature and alarms.
- **Pre-set values** for floating pressure, crankcase heater, and fan speed are ready for soft operation; night mode and alarms can be activated.
- **Connectivity:** The controller can connect to ADAP-KOOL® and/or an external remote display (optional) for remote monitoring and control.



Danfoss has upgraded the controller software to incorporate new components, such as EC fans, include new refrigerants, and update operating conditions to enhance customer experience. Since 2012, there have been at least 20 product upgrades.

The latest updates, detailed below, may not affect all customer ranges.

Year 2018, software version SW3.40:

- Added HFO R448A refrigerant.
- Implementation SN 116954CG1020.

Year 2021, software version SW3.61:

- Added EBM fan motor behavior for all Slim Pack W10 versions.
- Added A2L refrigerants (R1234yf, R455A, R454C) and model codes.
- Added fan function (F23) 20-30 seconds before start.
- Changed jog speed (F15) from 10% to 40%.
- Implementation SN 108954CG0821.

Year 2024, software version SW3.70:

- Decreased the minimum possible set point for suction pressure Ts (R23) from -25°C to -30°C.
- Increased the maximum possible thermostat cut-in value for an external heating element (069=2 and 040=1) (r71) from 0°C to 30°C.
- Increased the maximum possible setting of the condensing unit type (factory-set during controller mounting and cannot be changed subsequently) (o61) from 69 to 77.
- Implementation date SN 197046CG5024.

[Link to Controller for condensing unit Optyma™ Plus \(SW Ver. 3.7x\) User Guide](#)

Launch of Danfoss BOCK® New Subcritical CO₂ Compressor HGX56e CO₂ LT – for Higher Stand Still Pressures

Danfoss BOCK® proudly announces a new subcritical CO₂ compressor range for higher standstill pressures. This extends the existing LT range to include smaller capacities and follows the transcritical HGX56 CO₂ T compressor's market launch in Q2 2024.

The new product range will be launched on March 3, 2025. Initial production will include three model sizes offering 13 capacity stages ranging from 1.7 to 12.7 m³/h* and 41.7 to 59.1 m³/h*

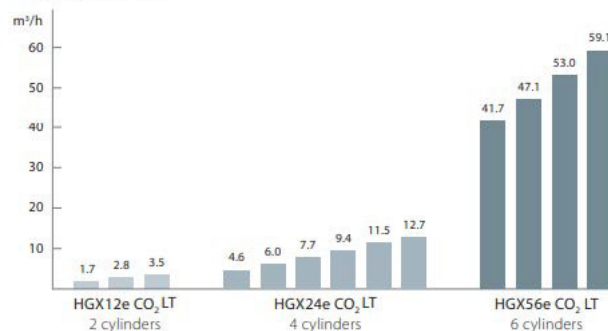
New product range

Subcritical CO₂ semi-hermetic compressor range: **HGX56e CO₂ LT** (for higher standstill pressures)



Subcritical CO₂ compressors (LT range – LP 100 bar)

3 model sizes with 13 capacity stages from 1.7 to 12.7 m³/h* and 41.7 to 59.1 m³/h (50 Hz)



Low-Temperature (LT) Specialist

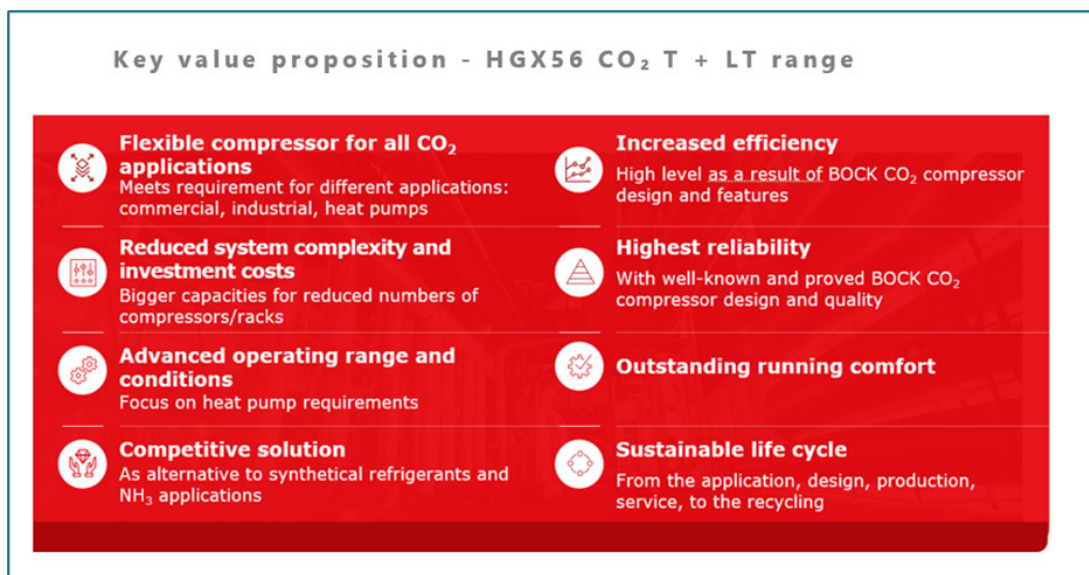
The Danfoss BOCK® HGX56e CO₂ LT compressor is designed for enhanced performance using the natural refrigerant R744. Its six-cylinder design increases capacity while reducing the number of compressors needed. Multiple design variants offer optimized solutions for industrial refrigeration, cold storage, and ice sports facilities, providing a sustainable alternative to synthetic refrigerants and ammonia (NH₃).

BOCK® offers the high-efficiency LT variant for low-temperature applications (evaporating temperatures: -50 °C to 0 °C; condensing temperatures: up to 25 °C). This compressor is specifically designed for subcritical CO₂ systems with high standstill pressures (LP/HP 100/100 bar) and is available in two motor versions ML and S offering a wide frequency band and expanded operating limits.

Danfoss BOCK® HGX56 CO₂ LT – Advantages and benefits

- Designed for demanding conditions using the natural refrigerant R744 in commercial and industrial applications.
- Higher capacities with a reduced number of compressors, resulting in reduced system complexity and investment costs.
- High efficiency and superior reliability due to the holistic design of the Danfoss BOCK® CO₂ compressor.

Value propositions



For more information, please visit our Danfoss Product Store [HG CO₂ LT subcritical BOCK compressors | Danfoss Global Product Store](#), compressor selection software (VAP) [VAP for Stationary Applications 11.14.5 \(online\) - CO₂-Compressor \(subcritical\)](#) or contact your local Danfoss sales representative.

The T-block Connector Is Not Mounted on The Compressor at The Factory

We would like to inform you of a recent change regarding the T-block connector. The T-block element remains the same; only the packaging method is changing.

Previously, MT/MTZ/NTZ type reciprocating compressors were delivered with the electrical connector installed in the electrical box (*see photo 1*). Due to changes in the organization of the compressor production process, the compressors will now be delivered with the electrical connector placed in a bag along with the other components of the mounting kit for self-installation (*see photo 2*). This applies to 2- and 4-cylinder MT/MTZ/NTZ compressors equipped with T-block.

Models:

- MT50 to MT64 code1, MT44 to MT80 code6, MT80 code3, MT100 to 160
- MTZ50 to MTZ64 code1, MTZ44 to MTZ80 code6, MTZ80 code3, MTZ100 to 160
- NTZ131 code1, NTZ215 to NTZ271



Photo 1



Photo 2

The implementation took place in Q3 2024, starting from compressor serial number 09287131.

Please note that the order numbers for the compressors remain unchanged.

Thank you for your attention to this matter. Should you have any questions or require further clarification, please do not hesitate to contact us.

BCP Pressure Switches – Discontinued VdTÜV Certificate

We would like to inform you that the VdTÜV certificate for BCP pressure switches has expired and will not be extended. However, we will continue with the PED certification from TÜV, which also applies to boiler applications and can be used as an alternative to the VdTÜV certificate.

Due to the VdTÜV certificate discontinuation, the BCP product label has been updated by removing TÜV.SDWFS/SDBFS.15-335 marking. Please see below as a reference.

Old label example	New label example

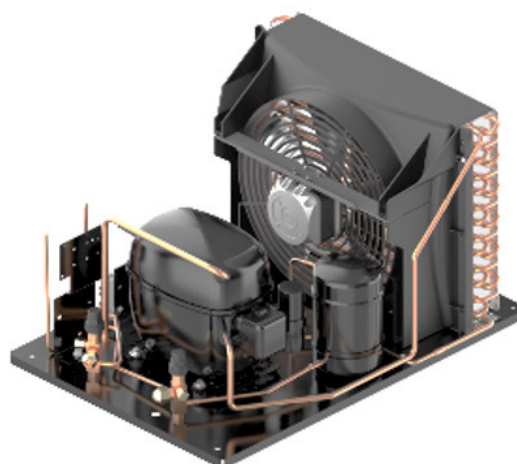
The BCP pressure switches without VdTÜV marking have been produced since the beginning of January 2025.

We do apologize for any inconvenience caused by this change. Should you have any questions not addressed here, please contact your local Danfoss sales representative

Fan Production Change for Optyma™ Light Commercial Condensing Unit

Due to some production stop by fan motor manufacturer, we take the opportunity to change Optyma black light commercial condensing unit range equipped with AC fan to EC fan motors.

These condensing units' replacement with equivalent EC fan motor will give less power consumption, those are one to one replacement, with exception of fan speed regulation.



Affected Products

Optyma light commercial CU codes :

Category	CU Code	CU Model Description	Old Fan Spare Part Code (AC)	New Fan Spare Part Code (EC)
OPTYMA Light Commercial	114E2529	C.U. SC15DLXT2	118U0035 / 118U0077	118U1010
	114E2540	C.U. SC15DLXT0 220-240V/50HZ		
	114H6745	C.U. SC15DLXT2		
	114X2649	C.U. OP-MCQC015SCA01G 220V		
	114X2651	C.U. OP-MCQC015SCA04G 220V		
	114E2587	C.U. SC18MLXT2 220V/50HZ		
	114X2757	C.U. OP-MCHC018SCA01G 220V		
	114X0773	C.U. OP-MCGC026GSA01G 220V R134A	118U0058 / 118U0076	
	114X0781	C.U. OP-MCGC034GSA01G 220V R134A		
	114X1673	C.U. OP-LCHC026GSA01G 220V R404A		
	114X1781	C.U. OP-LCHC034GSA01G 220V R404A		
	114X1783	C.U. OP-LCHC034GSA04G 220V R404A		
	114X2765	C.U. OP-MCHC021GSA01G 220V R404A		
	114X2767	C.U. OP-MCHC021GSA04G 220V R404A		

Fan motor technical comparison

Description	Old Fan Motors		Replacement Code
	118U0035 / 118U0077	118U0058 / 118U0076	118U1010
Type	AC axial Fan motor 18 W/230V	AC axial Fan motor 23 W/220V	EC axial fan (Single Speed)
Power supply	230V 1~ 50-60Hz	230V 1~ 50-60Hz	230V 1~ 50-60Hz
Speed	1300 rpm	1300 rpm	1300 rpm
Power	70 W	86 W	24 W
Current	0.48 A	0.62 A	0.20 A
Air flow	923 m ³ /h	790 m ³ /h	935 m ³ /h
Standard/Approval	CE, VDE, CCC, EAC	CE, VDE, EAC	CE, VDE, UKCA, ATEX
Sound power	64 dB(A)	67.1 dB(A)	64.5 dB(A)
IP protection	IP42	IP42	IP65
REACH/RoHS	Yes	Yes	Yes

Impact on Performance due to fan motor change

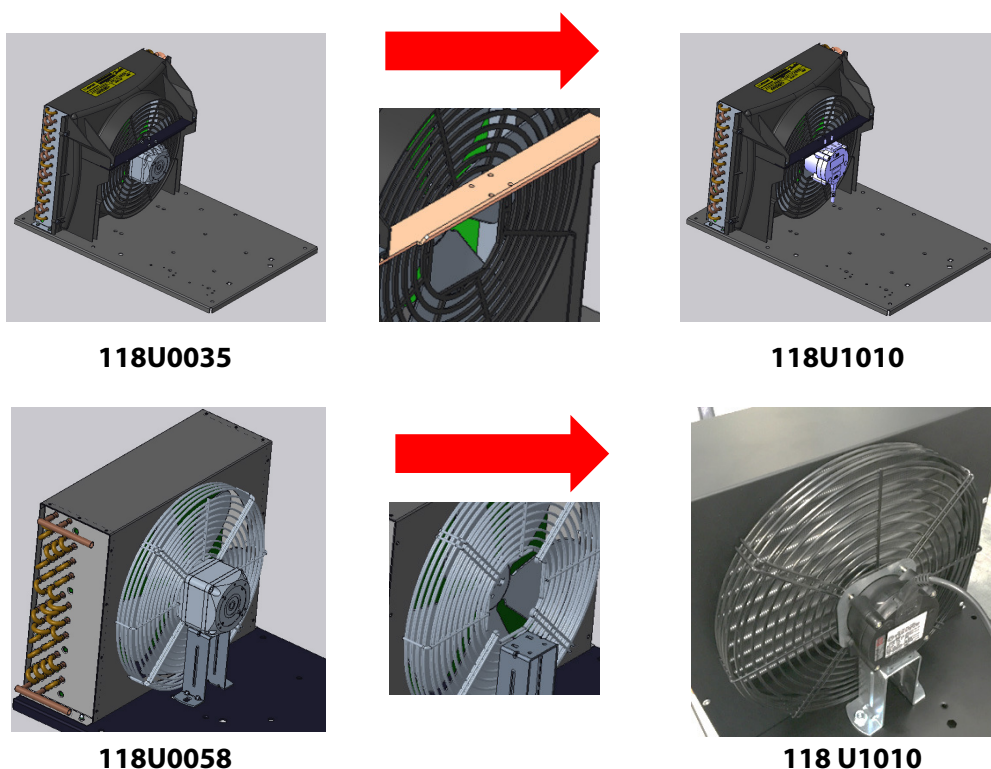
Please find below COP comparison at rated condition (EN13215) with old and new fan motor codes.

Code Number	CU Description	COP at Rated Condition		COP Improvement
		Old 118U0035 / 118U0077	New	
114E2529	C.U. SC15DLXT2	1.66	1.77	7%
114E2540	C.U. SC15DLXT0 220-240V/50HZ	1.66	1.77	7%
114E2587	C.U. SC18MLXT2 220V/50HZ	-	-	-
114H6745	C.U. SC15DLXT2	1.65	1.76	7%
114X2649	C.U. OP-MCQC015SCA01G 220V	1.61	1.7	6%
114X2651	C.U. OP-MCQC015SCA04G 220V	1.6	1.7	6%
114X2757	C.U. OP-MCHC018SCA01G 220V	1.49	1.57	5%

Code Number	CU Description	COP at Rated Condition		COP Improvement
		Old 118U0058 / 118U0076	New	
114X0773	C.U. OP-MCGC026GSA01G 220V R134A	1.77	1.92	8%
114X0781	C.U. OP-MCGC034GSA01G 220V R134A	1.73	1.85	7%
114X1673	C.U. OP-LCHC026GSA01G 220V R404A	0.95	1.04	9%
114X1781	C.U. OP-LCHC034GSA01G 220V R404A	1.00	1.07	7%
114X1783	C.U. OP-LCHC034GSA04G 220V R404A	1.00	1.07	7%
114X2765	C.U. OP-MCHC021GSA01G 220V R404A	1.75	1.86	6%
114X2767	C.U. OP-MCHC021GSA04G 220V R404A	1.75	1.86	6%

Fitment

Both fans have same design and mounting provisions, this is a one-to-one replacement.

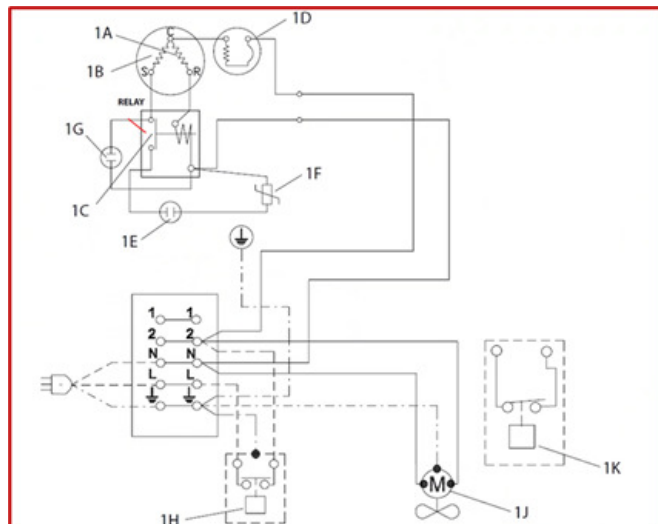


Condensing unit working envelope

Remain identical.

Electrical Diagram

No change in Electrical wiring diagram of Fan motor.



Impact/Change in Spare part codes

Old Spare Part Code	Fan Motor Description	Old EAN Number	New Spare Part Code	Fan Motor Description	New EAN Number
118U0058	Fan motor 23 W/220V	5702428580502	118U1010	Spare part, Fan motor EC 25-25	5702428580083
118U0076	Fan assemblies BG6	5702428580342	118U5528	Spare part, assembly motor & grill (BG6)	5715162512494
118U0077	Fan assemblies BG7	5702428580335	118U5529	Spart part, assembly motor & grill (BG7)	5715162595923
118U0035	Fan motor 18 W	5702428580694	118U1010	Spare part, Fan motor EC 25-25	5702428580083

The above old fan motor is completely phased out by manufacturers, all open spare part orders will need to be transferred to new codes.

Implementation date

For all code implementations will happen:

1. For Fan motor 118U5529 week 31 2023 SN: 29102331XXXXXX
2. For Fan motor 118U1010 week 51 2023 SN: 29102351 XXXXXX

New Starting Device for Optyma™ None Package Condensing Unit

As part of Danfoss' continuous product improvement, our Optyma none package condensing unit range will undergo new starting device to improve the start ability of the unit when operating outside of the standard compressor specification

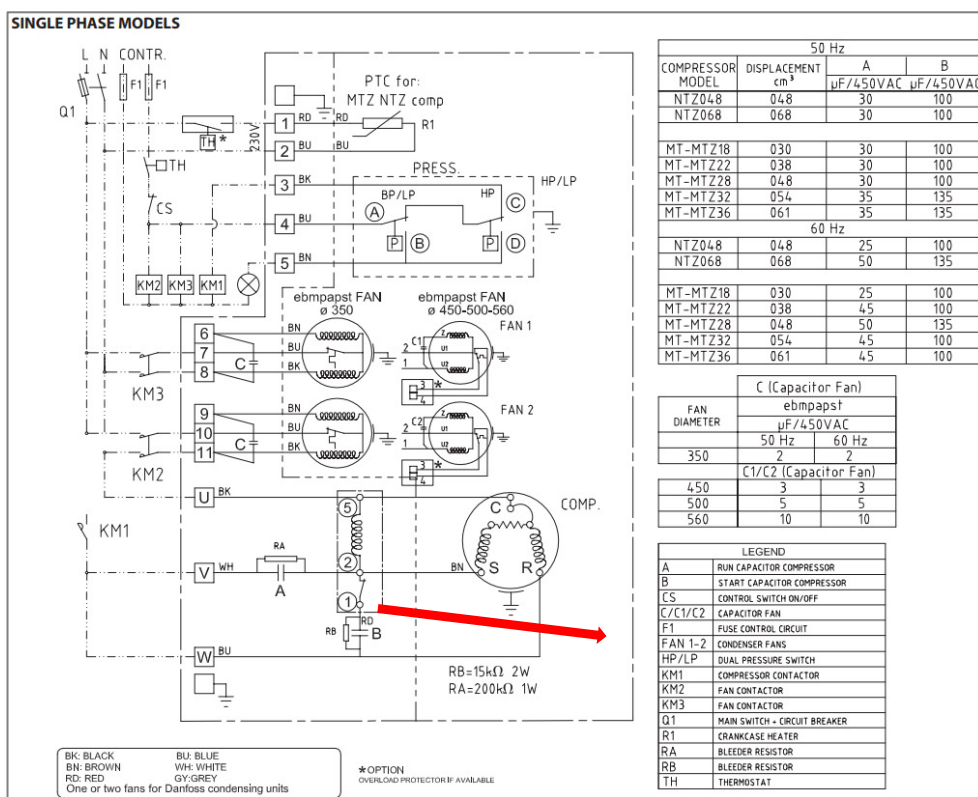
Standard reciprocating NTZ single phase wiring will be upgraded with upsize capacitor start capacitor type.

Affected Products

All none packaged single phase Optyma™ condensing unit range operating with single phase reciprocating NTZ compressors, Model code (Version): 114X5759 (A02), 114X5762 (A02), 114X5096 (A02), 114X5783 (A14)

Electrical Diagram

CSR wiring will be upgrade from to Start capacitor 330V, 98 μ F (Article code 8173001) to 161-193 μ F 330V (Article code 120Z0400)



This new wiring improves:

- Starting torque in high back pressure situation
- Starting, in case of poor power supply

Impact/Change in spare part codes

Spare part needs to be changed inside wholesaler catalogues

Old Starting Capacitor Code	Old Starting Capacitor Designation	New Starting Capacitor Code	New Starting Capacitor Designation
8173001	Start capacitor 330V, 98 μ F	120Z0400	Start capacitor 161-193 μ F 330V

Implementation date

All products will be affected on week 49 2025 for all none package unit meaning, starting from serial number 102449001417 (first code 114X5096).

Change of a Wiring Diagram for Gas Detector Accessories Strobe and Horn

We have detected a malfunctioning of the acknowledgement button alarm in Gas detector accessories Strobe and Horn.

The affected product

Part Number	Object Description
080Z2822	Gas detectors accessories - Strobe and horn

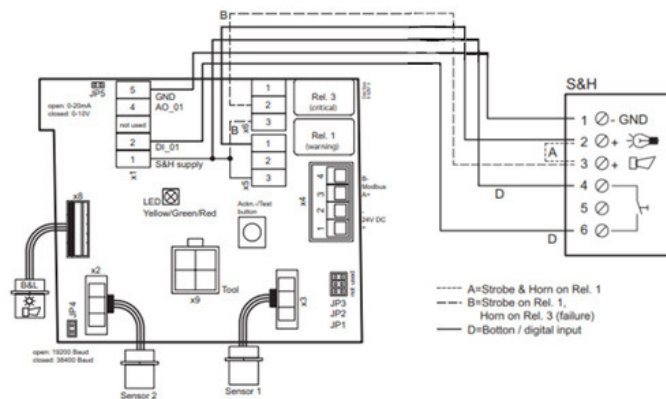


We have found a wrong implementation of wiring that is affecting the functioning of the strobe and horn acknowledgement button alarm. The temporary solution was established in the reworked devices and a new temporary wiring diagram used for its installation.

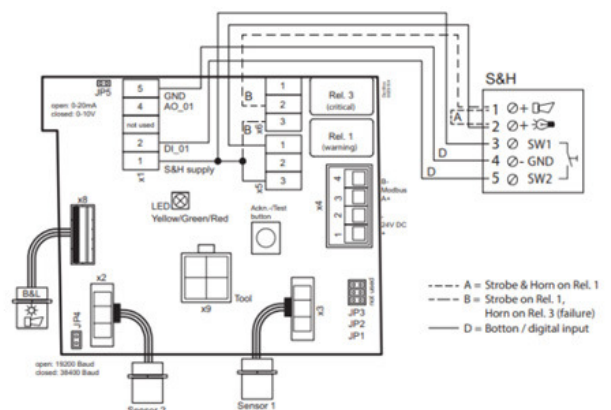
The reworked devices meet the Danfoss quality standards and are available from stock.

Please find below the previous and the temporary wiring diagram for the reworked devices below.

Previous



Temporary



If you need additional information, please contact your local Danfoss sales representative.

Launch of EKE 110 Injection Controller

We are pleased to announce the release of the EKE 110 Injection controller (1 model) to sales.

The new EKE 110 is an Injection controller for 1 valve control. EKE 110 is used in light commercial, commercial and industrial low ambient heat pump applications. The product is intended to be used for:

Vapor or Wet Injection (VI/WI)

Where controller will manage stepper motor valve in injection of superheated vapor to compressor injection port and automatically switch to wet injection to avoid high discharge gas temperature control depending on the running conditions. This improves compressor performance on an extended running envelope.

Liquid Injection mode (LI)

Where controller will manage stepper motor valve in liquid injection to avoid too high discharge gas temperature control depending on the running conditions, enabling the compressor to operate safely with an extended operating map.



The EKE 110 Injection controller is designed for Danfoss stepper motor valves in mind (i.e. ETS series, ETS Colibri, ETS Large, ETS P, ETS 5M (Bipolar), ETS 8M (Bipolar), ETS 6, KVS, CCM/CCMT).

For more details check [product data sheet](#).

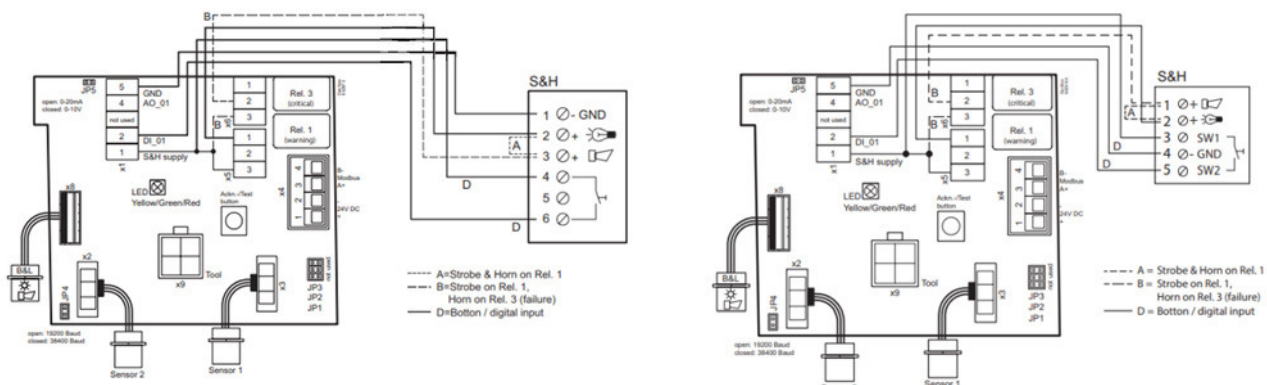
Features

- 1 Bipolar stepper valve output
- Supports NTC10K and PT1000 sensor types
- Fast installation and setup
- Lost step prevention
- Open circuit detection
- LED indication for valve movement and alarm/warnings
- Digital output for compressor-stop
- Battery backup option for emergency closing
- Modbus communication

Product Code	Product Description	Product Version
080G5059	EKE 110 1V Injection controller	PV01

Approvals

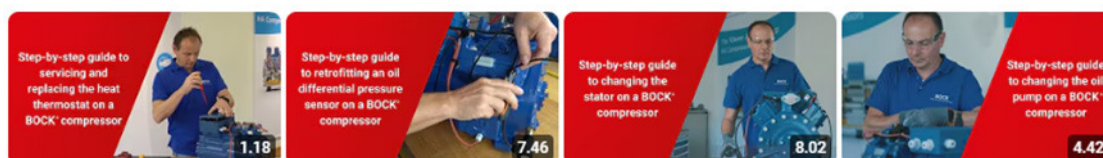
CE and EMC, UKCA, EAC, cURus are some of the major approvals that has been obtained on the product.



After the new version of Strobe and Horn is released, we will inform you and share the final wiring diagram in the Installation guide.

Videos on YouTube and Infographics

- How to change the stator on a BOCK® HG44e Compressor - [LINK](#)
- Danfoss BOCK® | How to service and replace a heat thermostat on a BOCK® compressor – [LINK](#)
- Danfoss BOCK® | How to retrofit an oil differential pressure sensor on a BOCK® compressor - [LINK](#)
- How to change the oil pump on a BOCK® compressor - [LINK](#)
- Danfoss BOCK® | How to change the oil - [LINK](#)
- Danfoss BOCK® F88 | Introducing the 8-cylinder open type compressor - [LINK](#)
- Danfoss Learning COOLING catalogue - [INFOG](#)
- Low-GWP Walk-in cold room - [INFOG](#)



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