

June 2026

Danfoss Climate Solutions for Cooling



TECH INSIDER

Your regular newsletter for technical updates and latest changes in refrigeration and industrial solutions.



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Introduction

Danfoss Tech Insider keeps you up to date with the latest developments in the Cooling and Industrial products portfolios from Danfoss Climate Solutions. Each edition offers a quick overview of key technical updates and product news, with direct links to relevant documentation and further details. Tech Insider ensures you're always informed about the latest innovations and changes across our products and solutions.

We hope you enjoy reading Danfoss Tech Insider and find it both useful and inspiring!

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Not all products/variants are available in all countries.
Please contact your local sales company for further info and product availability.

Release

VZN series: New model VZN220 released

The VZN series has been extended with the introduction of the new VZN220 model. This addition increases the available capacity range and expands application flexibility for systems using R290 refrigerant. The update supports improved performance across heating and cooling applications.

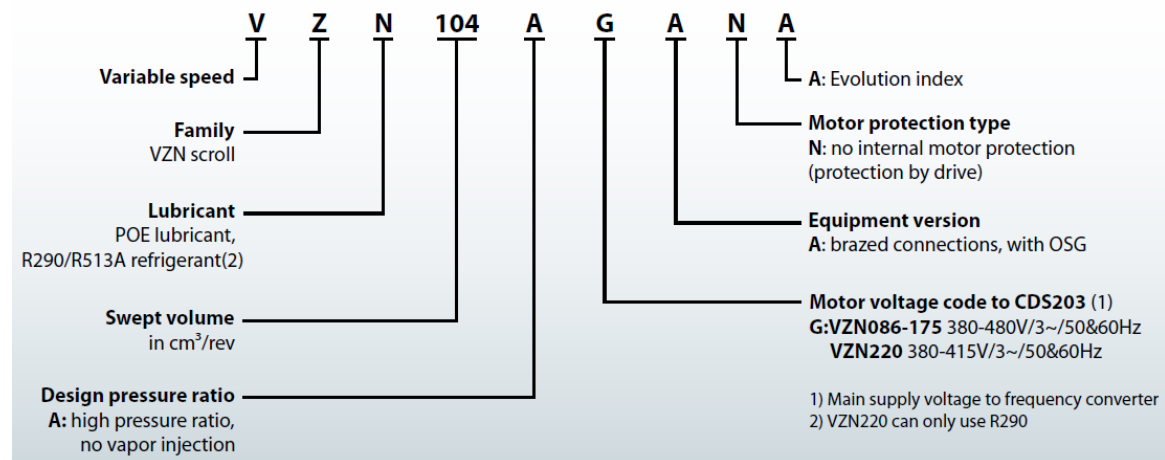
Key features

- ✓ Extended capacity range with new VZN220 model
- ✓ Wide operating envelope supporting multiple applications
- ✓ Best-in-class seasonal efficiency for high-temperature heat pumps, chillers, and even CRAC units
- ✓ Improved efficiency enabled by CDS203 40 kW frequency converter

Technical details

- ✓ Wide operating range: -30 °C to +25 °C evaporating, up to 82 °C condensing
- ✓ Compatible with R290 refrigerant
- ✓ Large capacity modulation enabled by newly qualified CDS203 40 kW frequency converter

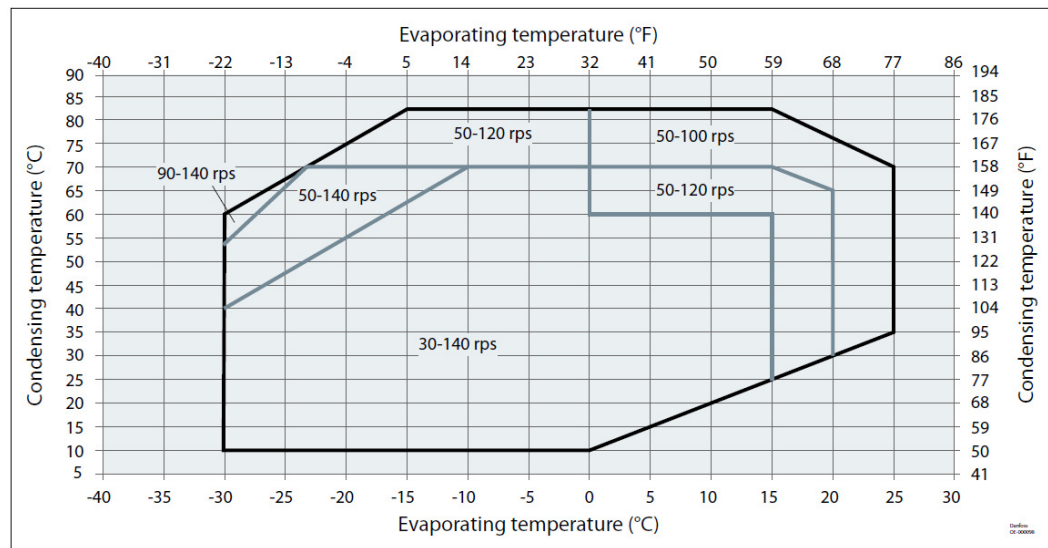
Nomenclature



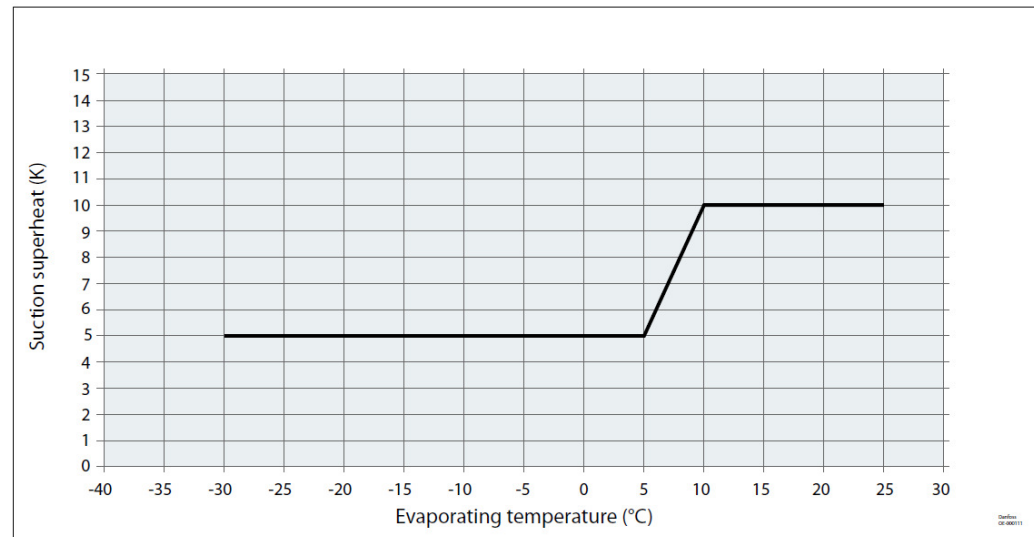
Compressor specification

Compressor model	Swept volume		Displacement										Oil charge		Net weight	
			30rps		60rps		90rps		120rps		140rps					
	cm3/rev	cu.in/rev	m3/h	cu.ft/h	m3/h	cu.ft/h	m3/h	cu.ft/h	m3/h	cu.ft/h	m3/h	cu.ft/h	dm3	oz	kg	lbs
VZN086	86.0	5.25	9.29	328	18.58	656	27.86	984	37.15	1312	43.34	1531	3.3	112	56	123
VZN104	104.0	6.35	11.23	397	22.46	793	33.70	1190	44.93	1587	52.42	1851	3.3	112	56	123
VZN140	140.0	8.54	15.12	534	30.24	1068	45.36	1602	60.48	2136	70.56	2492	3.3	112	65	143
VZN175	175.0	10.68	18.90	667	37.80	1335	56.70	2002	75.60	2670	88.20	3115	3.3	112	65	143
VZN220	220.0	13.43	23.76	839	47.52	1678	71.28	2517	95.04	3356	110.88	3916	4.0	135	85	187

Operating envelope



R290 minimum suction superheat



New sales codes for VZN220 and CDS203 40 kW drive

Compressors: Single pack

Model	Technical name	Product code
VZN086	VZN086AGANA	120G0471
VZN104	VZN104AGANA	120G0469
VZN140	VZN140AGANA	120G0467
VZN175	VZN175AGANA	120G0465
VZN220	VZN220AGANA	<u>120G0574</u>

Compressors: Industrial pack

Model	Technical name	Product code
VZN086	VZN086AGANA	120G0472
VZN104	VZN104AGANA	120G0470
VZN140	VZN140AGANA	120G0468
VZN175	VZN175AGANA	120G0466
VZN220	VZN220AGANA	<u>120G0575</u>

Frequency converter: Single pack

Compressor model	Frequency converter				
	Model	Power	Cooling type	Drive name	Sales code
VZN086 R290	CDS203	15 kW	Heat sink	CDS203-34P15K-3FH11	116B3001
			Coldplate	CDS203-34P15K-3FC11	116B4001
VZN104 R290	CDS203	18.5 kW	Heat sink	CDS203-34P18K-3FH21	116B3002
			Coldplate	CDS203-34P18K-3FC21	116B4002
VZN140 R290	CDS203	22.0 kW	Heat sink	CDS203-44P22K-3FH11	116B3003
			Coldplate	CDS203-44P22K-3FC11	116B4003
VZN175 R290	CDS203	30 kW	Heat sink	CDS203-44P30K-3FH21	116B3004
			Coldplate	CDS203-44P30K-3FC21	116B4004
VZN220 R290	CDS203	40 kW	Heat sink	CDS203-54P40K-3FH11	116B3013
			Coldplate	CDS203-54P40K-3FC11	116B4013

Frequency converter: Industrial pack

Compressor model	Frequency converter				
	Model	Power	Cooling type	Drive name	Sales code
VZN086 R290	CDS203	15 kW	Heat sink	CDS203-34P15K-3FH11	116F3001
			Coldplate	CDS203-34P15K-3FC11	116F4001
VZN104 R290	CDS203	18.5 kW	Heat sink	CDS203-34P18K-3FH21	116F3002
			Coldplate	CDS203-34P18K-3FC21	116F4002
VZN140 R290	CDS203	22.0 kW	Heat sink	CDS203-44P22K-3FH11	116F3003
			Coldplate	CDS203-44P22K-3FC11	116F4003
VZN175 R290	CDS203	30 kW	Heat sink	CDS203-44P30K-3FH21	116F3004
			Coldplate	CDS203-44P30K-3FC21	116F4004
VZN220 R290	CDS203	40 kW	Heat sink	CDS203-54P40K-3FH11	116F3013
			Coldplate	CDS203-54P40K-3FC11	116F4013

Availability

VZN220 and CDS203 40 kW were released in April 2026.

Supporting documentation ([Application guideline](#)) and Coolselector® 2 (version: 5.6.13) have been updated to new version with VZN220 information.

Release

Oil separators for transcritical CO₂: New OUB-TSR, OUB-TSN, and OUB-THR series

A new range of oil separators has been introduced to meet the demanding requirements of modern transcritical CO₂ refrigeration systems. Unmatched protection for your system.



Overview

The OUB-TSR, OUB-TSN, and OUB-THR series are designed to improve oil management, system reliability, and operational efficiency. The portfolio supports both serviceable and maintenance-free solutions.

Our latest oil separators are engineered to tackle the critical challenge of oil carryover in transcritical CO₂ applications. By effectively removing oil particles from the refrigerant, the OUB series helps prevent unplanned downtime and extends the lifetime of your system components.

Key features

Choose the model that best fits your application needs, with both serviceable and hermetic options available.

OUB-TSR/OUB-TSN – serviceable models for ultimate performance and serviceability

- ✓ **Ultra-fine oil separation:** achieves exceptional filtration down to 0.3 microns, ensuring the cleanest refrigerant possible.
- ✓ **Expansive filtration area:** features a large filtration surface of over 3300 cm², providing superior capacity and longer service intervals.
- ✓ **Reduced downtime:** proactively protects your system from the harmful effects of oil circulation, leading to more reliable operation.

OUB-THR – hermetic model for maintenance-free reliability

- ✓ **Hermetically sealed design:** Enables a true "fit and forget" solution with no maintenance required.
- ✓ **Efficient filtration:** Filters oil particles in the 3 to 10-micron range.
- ✓ **Long-lasting protection:** Provides a significantly longer lifetime compared to traditional filters, reducing total cost of ownership.

Availability

Available as part of the updated oil separator portfolio.

Product update

NTZ 2-cylinder compressors: Qualified for R454A/C and R455A

NTZ 2-cylinder compressors have been qualified for use with the refrigerants R454A/C and R455A.



This update enables the replacement of higher GWP refrigerants (R404A and R507) in existing applications. It supports compliance with evolving environmental regulations while maintaining system performance.

This change was implemented in May 2026.

Overview

The refrigeration industry has made significant progress in reducing the use of ozone-depleting refrigerants. A new trend of using synthetic refrigerants is emerging, driven by the global agenda on climate change and global warming. Synthetic refrigerants, particularly those with low Global Warming Potential (GWP), will play a crucial role in the industry. Danfoss is committed to supporting the development and application of these refrigerants, enabling our customers to achieve low GWP goals while enhancing energy efficiency.

The NTZ models listed below are qualified for use with refrigerants R454C and R455A, classified in Refrigerant Group 1. These refrigerants have a GWP below 150 and are classified as A2L, indicating low flammability properties. Please refer to European regulations (EN378, EN60335) and EPA rulings in the US for safe use. Outside of Europe and the USA, consult local regulations.

Qualified models

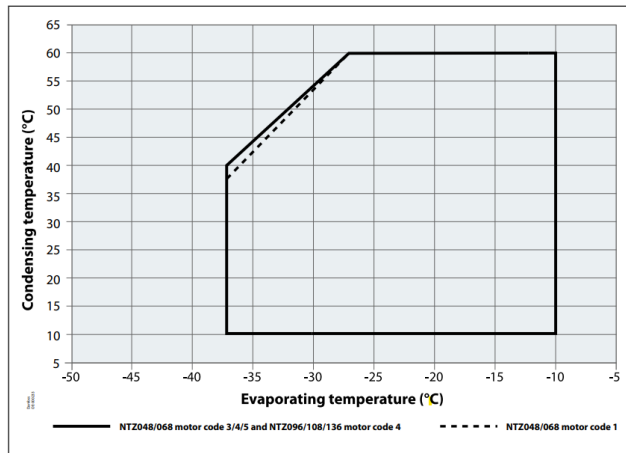
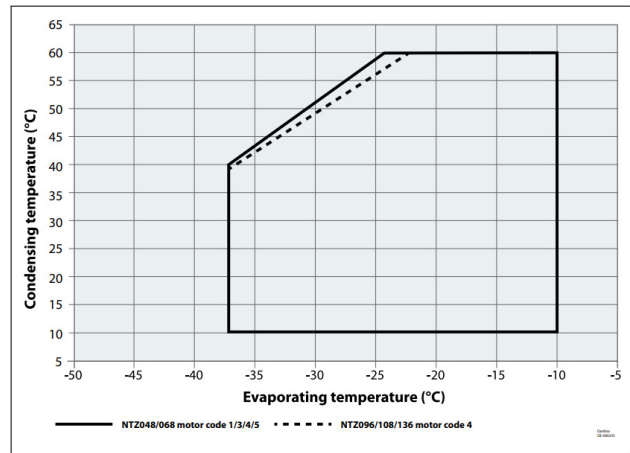
The following compressor models are qualified for use with R454A/C and R455A:

Ordering code	Compressor model	Technical name	Voltage	Packing
120F0234	NTZ096 -4	NTZ096A4LR1B	380–400 V/3~/50Hz & 460 V/3~/60Hz	Single pack
120F0235	NTZ096 -4	NTZ096A4LR1B		Industrial pack
120F0238	NTZ108 -4	NTZ108A4LR1B		Single pack
120F0239	NTZ108 -4	NTZ108A4LR1B		Industrial pack
120F0236	NTZ136 -4	NTZ136A4LR1B		Single pack
120F0237	NTZ136 -4	NTZ136A4LR1B		Industrial pack

Technical considerations

All listed compressor models, starting with serial number SE1009657794, effective May 21st, 2026, are qualified for use with R454C and R455A within the defined operating envelope.

Nominal performance data and operating limits are available in the official documentation. Please follow the corresponding operating maps for proper application of these refrigerants.

R545C - SH10K**R555A - SH10K**

R454A/C and R455A are zeotropic refrigerants with a temperature glide of about 6 to 12 K and must be charged in the liquid phase. To prevent oil dilution, a crankcase heater is recommended. It protects against refrigerant migration and maintains the oil temperature 8–10 K above the saturated LP temperature. Tests should be conducted to ensure an appropriate oil temperature under all conditions. A PTC crankcase heater is recommended for all stand-alone compressors and split systems. Under extreme conditions, a belt-type crankcase heater may be used in addition to the PTC heater.

Ordering information

There is no change in the ordering process; compressor codes remain the same. Compressor nameplates will specify Refrigerant Group 1 and will include a flammable refrigerant marking to ensure clear identification and compliance with safety standards.

For more information, refer to the [Coolselector® 2 selection program](#) available at our website.

Product update

Hydrocarbon compressors: Optimized with new refrigerant oil

Overview

Hydrocarbon compressors have been optimized through the introduction of a new refrigerant oil. The updated oil improves system performance and supports continued product reliability. The change is implemented across the hydrocarbon compressor portfolio.

Key updates

- ✓ **Replacement** of previous oil (1516-100) with Shrieve RFL 100-EP
- ✓ **Improved** performance and compatibility

In addition to the changes already communicated, the refrigerant oil previously used (1516-100) will also be replaced by the new Shrieve RFL 100-EP. This oil is used for hydrocarbon compressors with R600a.

The Shrieve RFL-100 EP is fully compatible and mixable with the previous 1516-100 oil. However, it is recommended to avoid mixing the oils to ensure optimal performance. During service and compressor replacement, the amount of residual old oil in the system must be kept to a minimum. This includes removing all oil from other components, such as oil separators. If necessary, perform an additional oil change to ensure optimal system performance.

NOTE: the compressor has been operating without any issues to date, an immediate oil change to the new RFL 100-EP refrigerant oil is not mandatory. The change can instead be carried out during the next scheduled service interval.

The implementation will take effect immediately.

Affected products

All hydrocarbon compressors (EX-)HG12P HC – (EX-)HG88e HC

Technical guidance

Selection tools and product details remain available via existing platforms.

- ✓ [BOCK VAP selection software](#)
- ✓ store.danfoss.com
- ✓ [Literature & pictures](#)



Please observe our guideline for the use of hydrocarbons with Bock® compressors.

Software release

AK-SM 800A: Software release 5.1 (incl. StoreView Web update)

A new software version 5.1 has been released for the AK-SM 800A System Manager series. The update introduces new features, performance improvements, and system enhancements. It also includes changes to system architecture that affect upgrade and rollback behavior.

A new Danux package (4.14.017.194) accompanies this release and should be installed prior to loading the AK SM 800A application update. Both packages are available on the ADAP-KOOL support site.

Software package 5.1 requires Danux 4.14.017.194



Overview

With the System Manager R5.1.x update, it will no longer be possible to downgrade to an earlier software version as the database structure has undergone significant changes that prevent this.

It is strongly recommended to perform a full backup of the system database before starting the update. StoreView Web embedded will remain the default remote user interface, while the previous SvB5 interface will continue to be available for a limited period but will be removed in future releases.

Key updates

Release 5.1.x is a major update for the SM800A Series and is recommended for all customers. It includes multiple enhancements, new features, and fixes.

Key highlights are:

- ✓ Support for Danfoss Drives over Modbus
- ✓ Increased number of supported Skylight photocells
- ✓ Ability to set the Alarms screen as the home screen in StoreView Web (SvW)
- ✓ Additional details added in the System Report
- ✓ Updates to customer-specific feature (CPT) – not generally available
- ✓ Fix for issue where Modbus 2 could not be enabled if Modbus TCP was enabled first

Release 5.1 Full Change Log (System Manager)

ID	Title
1887915	Support Danfoss drives over Modbus RTU
1902278	Update Password expiry into two lines (visual improvement only)
1952335	Enhancement request - support multiple skylight photocells
2023298	Support SvW for Preference - Alarms feature
2035394	Unable to enable Modbus 2 if MODBUS TCP enabled first
2045565	Add new attribute to System Report - what history has been configured
2045575	Add new attribute to System Report - what IO points are in manual override
1914766	Fix MCU not able to be upgraded in SM800A when Ion devices are plugged in
2017917	CPT alarms show 'F value when should show 'C
2018190	Support 'advanced' SVW Graphic Editor properties (Front/background color)

Important considerations

For security reasons, the Service Tool (ST 500) port is now disabled by default. To enable a remote Service Tool tunnel connection, the port must be activated via the [Configuration --> Security], and it should be disabled again once the tunnel is no longer required.

In compliance with cyber security requirements, all new user accounts must be created with strong passwords containing at least 8 characters, including lowercase letters, one uppercase letter, a digit, and a special character.)

Security requirements

To help keep your Danfoss products secure and protected, we strongly recommend implementing cyber security best practices to maximize protection against malicious attacks.

Installation steps

Before proceeding with the update, perform a full unit backup and check for any open alarms.

Step1: Install Danux 4.14.017.194.lpk

- ✓ Using StoreView Browser 5 / StoreView Web select OS update and proceed with Danux upgrade
- ✓ Allow a few minutes to pass with the new OS installed

Important notes: This file size package is large and depending on your network speed may take >10 minutes to complete.

Do not interrupt power during the OS update. For systems utilizing DHCP it is advised that this update is performed locally, as IP address change is possible after re-booting.

Step 2: Update System Manager firmware (package 5.1.x.spk)

- ✓ Using StoreView Browser 5 / StoreView Web or local USB Flash drive, select OS update and proceed software upgrade.

Do not interrupt power during the software update

- ✓ After installation is complete, review for correct system operation

Approved products

The table below shows approved AK-SM 800A portfolio versions suitable for software 5.1

AK-SM 800A variants

Type	Description	Code no.
AK-SM 820A	C-Store (Refrigeration / HVAC / Lighting)	080Z4024
AK-SM 850A	Refrigeration (including Lighting)	080Z4021
AK-SM 850A – no Wi-Fi	No Wi-Fi, Refrigeration (including Lighting)	080Z4022
AK-SM 880A	Full (Refrigeration / HVAC / Lighting)	080Z4028
AK-SM 880A – TP78	Retro-fit Full (Refrigeration / HVAC / Lighting)	080Z4029

AK-SM 800A variants without LonWorks®

Type	Description	Code no.
AK-SM 820A	C-Store (Refrigeration / HVAC / Lighting)	080Z4044
AK-SM 850A	Refrigeration (including Lighting)	080Z4041
AK-SM 880A	Full (Refrigeration / HVAC / Lighting)	080Z4048

Availability

Package 5.1 is released for general update and is available via [ADAP-KOOL® support site](#).
Stock units will not be recalled or updated.

Alsmart release

Alsmart® controllers: New AS-CX06 Mid SSR, AS-CX06 Mid+ SSR, and AS-XP10 released

New variants have been added to the Alsmart® controller portfolio, including AS-CX06 Mid SSR, AS-CX06 Mid+ SSR, and AS-XP10. These additions extend the platform with updated functionality and increased I/O capabilities. The new models support a broader range of application requirements.



AS-CX06 Mid+ SSR, AS-CX06 Mid SSR and AS-XP10

Key features

AS-CX06 Mid (+) SSR:

- ✓ Certified for CE, UL (Recogn.), RCM, UA, EAC
- ✓ Programmable with the Alsmart Design 1.10.0008
- ✓ Same numbers of I/Os (input and output) as AS-CX06 Pro+/Pro/Mid+/Mid/Lite
- ✓ The variance is equipped with one SSR in DO 5 position

AS-XP10:

- ✓ Certified for CE and UL (Recogn.)
- ✓ Expanded I/O capabilities (input and output) compared to AS-XP05(+) (from 17 to 30)

Affected products

- ✓ Alsmart Controller AS-CX06 Mid SSR [080G6040](#)
- ✓ Alsmart Controller AS-CX06 Mid+ SSR [080G6038](#)
- ✓ Alsmart Controller AS-XP10 [080G6010](#)

Availability

The new AS-CX06 Mid SSR, AS-CX06 Mid+ SSR available on stock starting from WK23, AS-XP10 available in stock. The Alsmart Design version 1.10.0008 can be downloaded from Danfoss Partner Portal or from Danfoss Alsmart Community.

Technical specifications

	AS-CX06 Mid+ SSR	AS-CX06 Mid SSR	AS-CX06 Mid+	AS-CX06 Mid
Digital Output	5	5	6	6
Digital Output SSR	1	1	---	---
Analog Output	3	3	3	3
Digital Input	2	2	2	2
Universal Input	10	10	10	10
TOTAL I/O	21	21	21	21
RS485	2	2	2	2
Ethernet	---	---	---	---
CAN FD	Yes	Yes	Yes	Yes
EEV	1	---	1	---
Power	24 V AC or 20–60 V DC			
USB-C	1	1	1	1
Dimension	6 DIN	6 DIN	6 DIN	6 DIN

	AS-XP05	AS-XP10
Digital Output	5	10
Analog Output	2	2
Digital Input	2 (Voltage free)	4 (24 V AC or 230 V AC)
Universal Input	10	14
TOTAL I/O	17	30
RS485	---	---
Ethernet	---	---
CAN FD	---	---
EEV	---	---
Power	From main controller	
USB-C	---	---
Dimension	4 DIN	6 DIN

Additional information

- ✓ [AS-CX06 Data Sheet](#)
- ✓ [AS-XP10 Data Sheet](#)
- ✓ [Alsmart website](#)

Data sheets are also available in other languages.

Download Alsmart Design v. 1.10.0008 from:

- ✓ A dedicated Alsmart section of the [Danfoss Partner Portal](#)
- ✓ [Danfoss Alsmart Community](#).

Access guidance

- ✓ Follow the instructions in [Alsmart Partner Portal - Quick setup guide](#) and the registration link to request access to the Alsmart Community [Join Alsmart Community](#).

Phase out

EKC 202x and AK-CC 2xx controllers: Phase-out initiated

The phase-out process for EKC 202x and AK-CC 2xx controllers and related accessories has been initiated. This change follows the introduction of the new AK-CC25 platform. Customers are advised to plan the transition to the replacement products within the defined timeline.

Timeline

Customers will be able to place orders for the affected products **until December 2026**, with the possibility of **receiving deliveries until June 2027**.

Please note, however, that the EKA179 LON module will have its **last-time-buy deadline in August 2026**. We encourage you to prepare your transition to the new AK-CC 25 Pro & Pro BT controllers.

Affected products

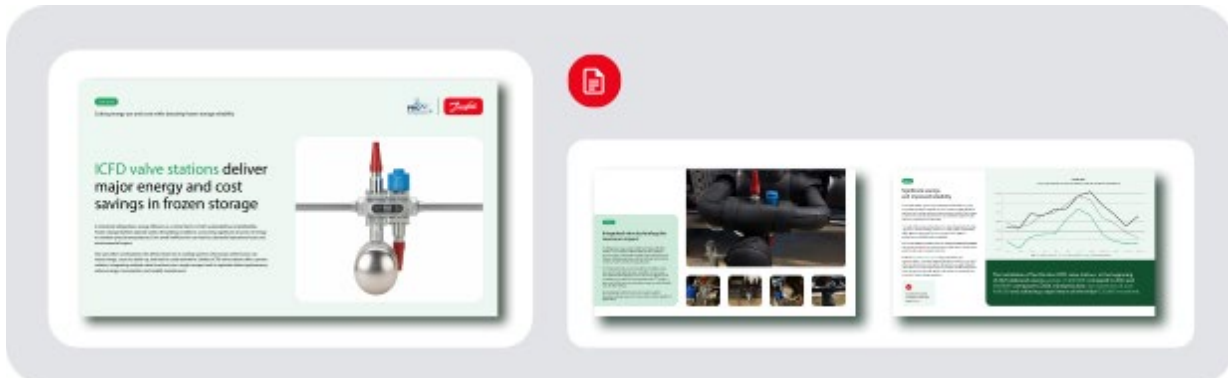
EKC 202	
084B8521	EKC 202A, Ref. Controller
084B8522	EKC 202B, Ref. Controller
084B8523	EKC 202C, Ref. Controller
084B8536	EKC 202D, Ref. Controller
084B8543	EKC 202C-MS, Ref. Controller, NTC
084B8551	EKC 202A, Ref. Controller, w. NTC sensors
084B8552	EKC 202B, Ref. Controller w. NTC sensors
084B8553	EKC 202C, Ref. Controller w. NTC sensors
084B8554	EKC 202D1, Ref. Controller
084B8622	EKC 202B, Ref. Controller, I-pack
084B8623	EKC 202C, Ref. Controller, I-pack
084B8636	EKC 202D, Ref. Controller, I-pack
084B8654	EKC 202D1, Ref. Controller, I-pack
AK-CC 2xx (EKC 204)	
084B8450	AK-CC 240, Controller
084B8520	AK-CC 210, Ref. Controller, M-Pack
084B8528	AK-CC 250A Ref. Controller, Pt/PTC, M-Pack
084B8534	AK-CC 210, Ref. Controller, 115V, M-Pack
084B8620	AK-CC 210, Ref. Controller, I-pack
084B8644	AK-CC 210B, Ref. Controller, I-Pack

EKA 16X display	
084B8561	EKA 153, Thermometer
084B8582	EKA 183A, Accessory, Programming Key
084B8584	Mounting kit, Accessory, for EKA display
084B8670	EKA 164A, Display, Universal, Green I/24
EKA Modules	
084B8564	EKA 178A, Modbus Module, Data comm.
084B8571	EKA 178B, Modbus Module, Data comm.
EKA PLUG-IN MODULE	
084B8565	EKA 179A, LON-module, RS485
EKC ACCESSORIES	
084B8166	Accessory bag w. terminals, Case contrl
084B8586	Accessory Bag, 6-pol Terminal, 30 pcs
084B8587	Accessory Bag, 2-pol Terminal, 30 pcs
084B8588	Accessory Bag, 3-pol Terminal, 30 pcs
084B8590	Accessory Bag, 7-pol Terminal, 30 pcs

Replacement guidance

All the controllers listed above can be replaced by the new AK-CC25 Pro (BT) with the limitation of support for LON communication. As LON communication has been declared obsolete by its technology provider, Danfoss will no longer integrate service support for this in our new products. For service replacements (spare parts), a limited number of AK-CC 210 controllers and accompanying EKA 179A LON option modules have been secured and will be made available for service replacement only.

New and updated content



Case story

- [ICFD valve stations deliver major energy and cost savings in frozen storage](#)

Videos

- [Hands-on HVAC & refrigeration training | Danfoss training bench](#)
- [Building better supermarkets for the world | Danfoss Smart Store - update](#)

[Subscribe to Danfoss Climate Solutions Youtube channel](#)

Website update

- [Multi Ejector Solution™](#)

Podcast

- [The hidden costs of oversized HVAC equipment](#)

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[Cooling installer hub](#)

Get technical support for installing Danfoss sensing solutions

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