ENGINEERING
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TECH
INSIDER

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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Valves Stations ICF 25 with ICFG (ICS Module) for Pressure Control

We are pleased to announce the global release and availability of multiple valve stations ICF-25 configurations with the new ICFG module for pressure control. The ICFG is a new module of the ICF platform that accommodates ICS 25 multiple modules into ICF and can be configured with any pilot arrangement, like ICS.

The addition of ICFG module to ICF platform, extends the already wide number of applications for the platform and offers the multiple benefits of ICF valve stations to applications requiring pressure control. The installation, operation, and servicing will become easier and faster when integrated with ICF.

ICF 25 with pressure control module (ICFG)

The ICFG module can accommodate all ICS 25 inserts and be configured with pilot arrangements exactly the same as ICS. These new configurations will allow you to cover more applications with ICF, such as evaporator pressure regulator for smaller systems as well as outlet regulators for hot gas feed.

The new configurations released cover ICF 25-4 and 25-6 with multiple connection sizes and multiple selection of ICS 25 inserts on ICFG.

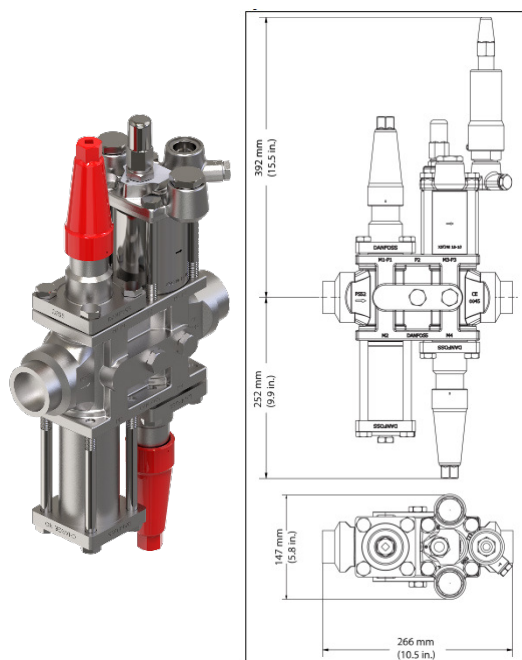| Application code	Port sizes	Connection sizes	Connection type	Module location			
				M1	M2	M3	M4
ICF 25-4-42	5-10-15-20-25	1", 1¼", 1½"	Socket weld	ICFS 25 Shut-off	ICFF 25E Strainer	ICFG 25 ICS option*	ICFS 25 Shut-off

Application code	Port sizes	Connection sizes	Connection type	Module location					
				M1	M2	M3	M4	M5	M6
ICF 25-6-42	5-10-15-20-25	1", 1¼"	Socket weld	ICFS 25 Shut-off	ICFF 25E Strainer	ICFG 25 ICS option*	ICFS 25 Check	ICFB 25 Blind cover	ICFS 25 Shut-off

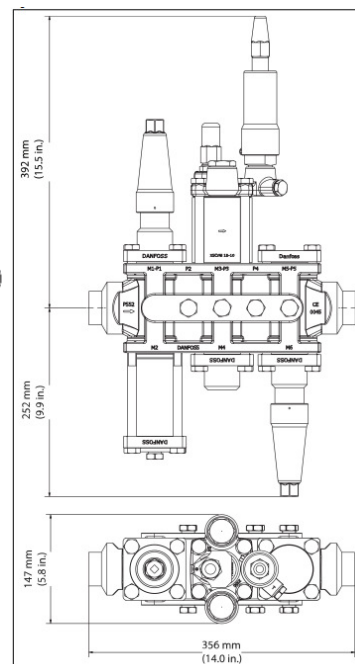Capacity calculation and configurations with ICFG are already available in **Coolselector®2** for ICF-25.

New configurations released

	Code no.	Description	ICFG (ICS module)	Connection size	Connection type
ICF 25-4	027L4230	Valve Station ICF 25-4-42S3-5	ICFG25-5	1"	SOC
	027L4231	Valve Station ICF 25-4-42S3-10	ICFG25-10	1"	SOC
	027L4232	Valve Station ICF 25-4-42S3-15	ICFG25-15	1"	SOC
	027L4233	Valve Station ICF 25-4-42S3-15	ICFG25-15	1 1/4"	SOC
	027L4234	Valve Station ICF 25-4-42S3-20	ICFG25-20	1"	SOC
	027L4235	Valve Station ICF 25-4-42S3-20	ICFG25-20	1 1/4"	SOC
	027L4236	Valve Station ICF 25-4-42S3-25	ICFG25-25	1 1/4"	SOC
	027L4237	Valve Station ICF 25-4-42S3-25	ICFG25-25	1 1/2"	SOC
ICF 25-6	027L4240	Valve Station ICF 25-6-42S3-5	ICFG25-5	1"	SOC
	027L4241	Valve Station ICF 25-6-42S3-10	ICFG25-10	1"	SOC
	027L4242	Valve Station ICF 25-6-42S3-15	ICFG25-15	1"	SOC
	027L4243	Valve Station ICF 25-6-42S3-20	ICFG25-20	1"	SOC
	027L4244	Valve Station ICF 25-6-42S3-25	ICFG25-25	1"	SOC
	027L4245	Valve Station ICF 25-6-42S3-15	ICFG25-15	1 1/4"	SOC
	027L4246	Valve Station ICF 25-6-42S3-20	ICFG25-20	1 1/4"	SOC

ICF 25-4-42

ICF 25-6-42

Module ICFG spare part
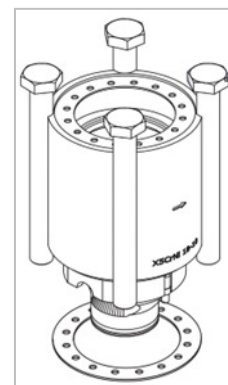
Code no.	Description
027L2261	ICFG 25 Pilot-operated valve module*

* For complete ICS pilot control function: 1 ICFG Pilot-operated valve module
+ 1 ICS 25 function module + 1 ICS top cover.

Technical documentation on the new variants and new module can be found in the following documents:

- **ICF data sheet**
- **ICF spare parts data sheet**
- **ICF installation guide**
- **ICS data sheet**

If you need additional information you can visit **our website for ICF valve stations** or contact your local Danfoss sales representative.

Pressure Switches: New Types KP4 and KP47WB with Increased MWP to 21,5 bar for Low Pressure Control

With the rapid development of refrigerants, we are pleased to announce the introduction of a new range of KP pressure switches with an increased maximum working pressure of 21.5 bar for low pressure control:

- KP4 Low Pressure Switch
- KP47WB Dual Pressure Switch

With the increase in maximum working pressure, the new range of KP pressure switches are now also approved with the use of R455A which requires a higher operating pressure for the suction side of the system which was not possible with the existing range of KP pressure switches.

The new types can also be used with other mildly flammable refrigerants R454C, R1234yf, R1234yz and R1234ze, following the same requirements as other KPs.

Currently available specifications:

Pressure	Type	Low Pressure (LP)		High Pressure (HP)		Reset		Contact system	Code no.	
		Regulating range [bar]	Differential Δp [bar]	Regulating range [bar]	Differential Δp [bar]	Low Pressure (LP)	High Pressure (HP)		Connection	
									1/4 in. 6 mm flare	6 mm ODF solder
Low	KP 4	-0.2 – 7.5	0.7 – 4.0	-	-	Auto	-	SPDT	060-440166 (3)	-
Dual	KP 47WB	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Conv.	SPDT + LP and HP signal	060-470366 (3)(4)	-

(3) Enclosure IP44

(4) Factory setting: LP side: Range 1 bar Pe, Diff. 1 bar; HP side: Range 18 bar Pe, Diff. 4 bar fixed

Introduction and Launch of New Optyma™ Control Platform for Cold Room Applications

Danfoss is pleased to announce the launch of a brand-new platform for the Optyma™ Control family that builds on our experience in the cold room applications and further expand the portfolio from 1 model offer to 3 different models.

This new addition to the portfolio will target initially the CE market and those regions where CE marking is accepted. However, it is the first large launch of a longer roadmap aimed to add a full global portfolio of solutions, with further launches already scheduled in the immediate future.

The new platform maintains some of the features already implemented, as the self-contained, fully protected enclosures but adds several new features, while offering more variety to satisfy different markets.

Please see below:

Code Danfoss	Description	Application
080Z5001	AK-RC 204B	Cold Room Controller, 230V, 4 Outputs
080Z5002	AK-RC 205C	Cold Room Controller, 230V, 5 Outputs w/Protection
080Z5003	AK-RC 305W	Advanced Cold Room Controller, 100-230V, 5 Outputs

1. Simple to install and setup
   - Easy wiring and access, with large space to connect
   - Easy commissioning with Wizard, 13 pre-set configurations to expedite installation. Up in minutes.
   - IP65 protection when properly installed

2. Flexible
   - Multiple options for different applications using similar logic
   - Cover medium and low temperatures

3. Functional
   - 4-5 relays for direct control
   - Compressor, fan, lights, crankcase heater, alarms and dual evaporator defrost and aux.
   - Defrost by air, electric, hot gas
   - Door alarm and Man locked alarm
   - Optional adaptive defrost and fan management in the advanced version.

Timeline and availability

The new Optyma™ family was officially unveiled at Chillventa 2022, where the family and all the Danfoss' solutions for the Cold Room market were presented in our booth. If you missed Chillventa, please visit our Online event, where a recording of the official presentation is available, alongside with other interesting webcasts:

Danfoss Chillventa Online

Affected products and Impact

As a result of the introduction of this new family, a few changes will happen in the existing portfolio and its future availability:

1) The existing family of AK-RC111(080Z3220) will enter a phase out period starting Nov. 1st.

2) Availability of the existing code will be limited. A gradual ramp down on these products will take effect starting in November and last until January 2023. After this period, orders for the existing code will be processed manually and under revision. Also increased lead times are to be expected on the existing codes. This combination of factor will cause that not all orders for the existing code will be satisfied while the family undergoes the End of Life process and the ramp down will not be modified if surge orders are entered. All new orders should move to the new parts as soon as possible.

3) Last time buy will be Jan. 31st 2023, with a last time delivery of Feb 28th, 2023, after which only products for service or replacement will be available in limited quantities.

4) The AK-RC 113 family will not be affected at the time and will continue to be available until further notice.

Resources and Detailed Information:

To learn more about the new Optyma™ Controller and access expanded information, including User Manual, Quick Installation Guide and other training material, click in the link bellow:

Optyma cold room controllers for single-phase cooling systems

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

IP Communication Between AK-PC 782B and AK-SM 800A Series

A new product version of the AK-PC 782A called AK-PC 782B is now available, with the intention to support communication over IP towards AK-SM 800A product family.

With the announcement of the newly released ADAP-KOOL™ System Manager 800A Software Package 3.1, the communication over IP is now made possible towards the new AK-PC 782B. The new Software Package 3.1 is now available for download from **ADAP-KOOL support site.**

To support this new communication setup and to reduce the dependency on scarce LON modules, new versions of the AK-SM 800A **without** LON module are now also available.

News on AK-SM 800A

All System Manager 800A Series updated to software version 3.1 or above will be capable of communicating with the new AK-PC 782B. Communication over LON with the AK-PC 782A through the System Manager 800A series remain possible for current variants supporting LON modules. New variants of the AK-SM 800A has now been created without LON modules. These variants will only support the new AK-PC 782B and no longer the AK-PC 782A variant or any other LON based controllers.

The new variants **without** LON module are:

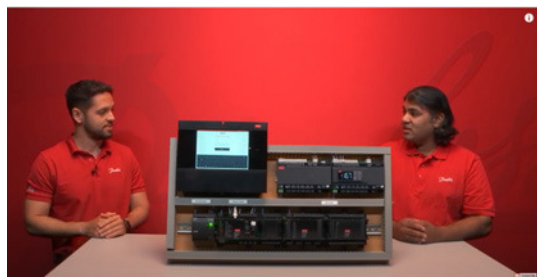|	
AK-SM 820A	080Z40**44**
AK-SM 820A - no WiFi	080Z40**45**
AK-SM 850A	080Z40**4**1
AK-SM 850A - no WiFi	080Z40**4**2
AK-SM 880A	080Z40**4**8

News on AK-PC 782B

AK-PC 782B with SW rel. 3.6 will present the same features and functionality of the existing AK-PC 782A, with the only difference of having communication over IP towards AK-SM 800A product family.

Important information for new installations

For installation of new systems, please ensure whether the refrigeration pack will be delivered with AK-PC 782A or AK-PC 782B. If the pack has been specified with AK-PC 782B please prepare the store setup accordingly, including:

- Shielded ethernet cabling between AK-PC and AK-SM
- A DHCP router for IP addressing of AK-PC 782B
- An AK-SM 800A with SW version 3.1 or higher. If all pack controllers in the system are AK-PC 782B an AK-SM 800A variant <u>without LON module can be used.</u>

If the pack has been specified with AK-PC 782A you can prepare a similar setup as today but ensure that the store is equipped with an AK-SM 800A <u>with LON module.</u>

For more information on how to install the new network setup with AK-PC 782B, please visit this website **FAQ site.**

For general information about communication between ADAP- KOOL controllers, refer to the updated communication guideline found under this link: **Design Guide: Communications between controllers and AK-SM 800A**

Service replacements in existing installations

For service replacements of both AK-PC 782A and AK-SM 800A please bear in mind that the right version needs to be installed:

Replacement of AK-PC 782A

For service replacement of AK-PC 782A there are two options:

1) **Replace with AK-PC 782B**. In this case you will need to change the LON cabling to shielded ethernet cables and add a DHCP router. Additionally, please ensure that the setup is equipped with an AK-SM 800A with SW version 3.1 or above. If the setup contains a front end older than AK-SM 800A, please refer to option 2.

2) **Replace with AK-PC 782A.** In this case you can keep existing LON cabling and make the replacement as usual. Due to component scarcity, option 1 is recommended for any service replacements in setups with AK-SM 800A.

Replacement of AK-SM 800A

For service replacement of AK-SM 800A there are also 2 options depending on store setup.

1) If all refrigeration packs are using AK-PC 782B it is recommended to install an AK-SM 800A without LON module.

2) If the system includes LON based controllers, please make sure to replace with an AK-SM 800A variant with LON module.

Affected products

The below table shows the list of affected products within the **System Manager portfolio:**

Current Portfolio – Variants **with** LON Modules:

AK-SM 820A	080Z4024
AK-SM 820A - no WiFi	080Z4025
AK-SM 850A	080Z4021
AK-SM 850A - no WiFi	080Z4022
AK-SM 880A	080Z4028
AK-SM 880A - TP78	080Z4029

New code numbers - Variants **without** LON Modules:

AK-SM 820A	080Z40**44**
AK-SM 820A - no WiFi	080Z40**45**
AK-SM 850A	080Z40**41**
AK-SM 850A - no WiFi	080Z40**42**
AK-SM 880A	080Z40**48**

The affected products within the **Pack Controller portfolio:**

IP	AK-PC 782B	080Z0202
LON	AK-PC 782A	080Z0192

CDS Drive New User Manual Release

To continue to reduce our carbon footprint and become CO_2 neutral in all Danfoss global operations by the year 2030, Danfoss has released a smarter and greener user manual concept - Installation Guide for CDS drives, starting September 2022.

Affected Products:

CD-302 for VTZ compressors, CDS303 for VZH series, CDS803 for VZH series.

Implementation Date:

CD-302, CDS303 drives began shipping with the new Installation Guide beginning of September 2022. CDS803 will begin shipping with the new guide later in year 2023.

Change Description:

CDS drives will be shipped with an Installation Guide that uses 50 % less paper consumption than previous versions.
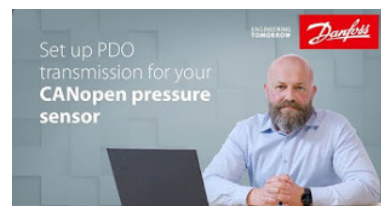
Impact of changes:

- Can install drives more easily, with many more illustrations to support the installation process.
- Can access more detailed information via QR codes, if required.
- The new Installation Guides are available in multiple languages.
- Can get PDF file of Operating Guides, Design Guides and Programming Guides from below path.

Link: **VLT® Compressor Drives (danfoss.com)**

If you need additional information regarding this update, please contact Danfoss technical support.

Videos

- Introduction to the AK-CC55 Water Loop Controller **- LINK**
- Sensing Solutions – how to videos:
  - Set up PDO transmission on a CANopen pressure sensor - **LINK**
  - Where to apply changes in the PDO mapping on a CANopen pressure sensor - **LINK**
  - How to set the node ID on a CANopen pressure sensor - **LINK**
  - How to set a filter on a CANopen pressure sensor **- LINK**
  - Explore the different objects embedded into the DST P10B CANopen pressure sensor **- LINK**
  - How to change the baud rate of the DST P10B CANopen pressure sensor **- LINK**

Trainings on Cold Room Calculation

Cooling load calculation for cold rooms is updated and available in Danfoss Learning. The trainings are targeted for all who work with cold room installations.

1. Cooling Load Calculation: Introduction
2. Cooling Load Calculation: Product load
3. Cooling Load Calculation: Transmission load
4. Cooling Load Calculation: Infiltration and Safety factor
5. Cooling Load Calculation: Internal loads and Equipment loads

Details for Additional Information

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