

ENGINEERING  
TOMORROW



April 2021 | Danfoss Climate Solutions for cooling

# 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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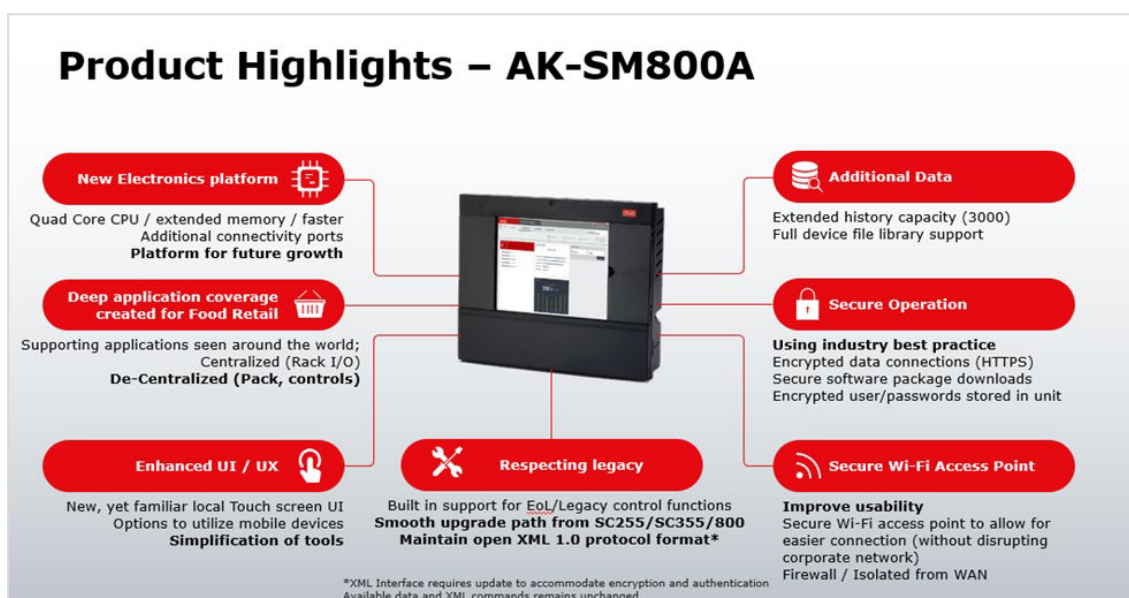
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## ADAP-KOOL™ the Next Generation System Manager, AK-SM 800A Major Software Release

The **System Manager 800A** series is an enhancement of the global System Manager 8xx, and our coming Release 2 will now be available to better suit our European market and many other regions as per certification availability described below. The **AK-SM 800A** maintains familiarity and a deep application feature set but is enhanced via several significant updates.

### Software Release 2 - new feature highlights (compared with R1)

- Device list is automatically updated (when approved EDx/epk files are installed)
- Updated Layout Wizard to support Multi-suction Pack controllers (SvB5 feature only)
- New Browser Certificate Management tool added to Utilities (SvB5 feature only)
- Improved security features
- Updated history collection, allowing polling rates where previously only event logging was allowed (generic devices)



### Migration from EoL / Legacy System Managers

The design of the AK-SM 800A includes auto database upgrade for AK-SM 800 systems. For AK-SC 255 systems a stepwise upgrade path is also supported, eliminating the need to reprogram existing systems.

### Product Codes

Product	Code
AK-SM 820 (RS485)	080Z4024
AK-SM 850 (RS485)	080Z4021
AK-SM 880 (RS485)	080Z4028
AK-SM 880 'TP78 Retro-fit'	080Z4029

### Materials

More information can be found here [AK-SM 800A Series | Danfoss](#)

## Known changes / Important information

The table below highlights a selection of important operational points that are new in the AK-SM 800A.

Topic	Comments
Parameter refresh in SvB5	It has been noted that the parameter refresh rate for the SvB5 Dashboard and Control setting screen(s) can be random in performance. Please note when accessing configuration/control settings screens there may be a delay in screen refresh, resulting in menus not appearing or datapoints not refreshing as expected. Please allow some seconds for screens to get updated or you may use the browser refresh button. This topic has been noted as a priority update for a following SvB5 update
Updating of software	<p>The AK-SM 800A has a robust software update utility, designed purposely to enable local and remote updates.</p> <p>As is common practice for modern electronic devices, it is important to check for software updates.</p> <p>Visit <a href="#">AK-SM 800A Series   Danfoss</a></p> <p>The AK-SM 800A uses a new 'package' format that typically will include SM 800A firmware, SvB5, Operating system (Danux) and EDF's</p> <p>Danux is the name used for the Danfoss distribution of Linux OS</p>
Installing an AK-SM800A in AK-SM800 host network	Due to security features that do not exist in the original SM 800 it is not currently possible to mix/combine the AK-SM 800A in an AK-SM 800 host network
StoreView Desktop & RMT	The AK-SM 800A supports a full HTML5 web browser with built in utilities that replaces StoreView Desktop and RMT. These PC tools are not therefore supported by the AK-SM 800A
Supported Browsers for SvB5	<p>Apple Safari</p> <p>Google Chrome/ Microsoft Edge (Chromium) v84.0.522.xx and above</p>
SvD / RMT Address book	Due to the migration to HTML5 browser, the address book feature is replaced by your browser bookmarks function.
Offline Simulation	It is currently not possible to offer offline simulation on the AK-SM 800A platform.
Username and Passwords (workflow)	<p>Users who forget their passwords will need to call <b>+1 866 5130581</b> or email: <a href="mailto:des2@danfoss.com">des2@danfoss.com</a> to receive a new password.</p> <p>This service is available 24/7.</p>
Open Interface XML1.0	<p>Customers who wish to use the Danfoss XML1.0 for SM 800A systems will need to update the authentication and encryption messaging of their interface.</p> <p>Please contact local Customer Service for support.</p>
New communication field bus ports	As noted in the graphic on the front page, the AK-SM 800A is prepared for the support of additional field buses. These new field bus options will be enabled via software updates in the future
Wireless approvals / certifications	Due to the included Wireless Wi-Fi chip (enabling Wi-Fi Access Point) the AK-SM 800A has been approved for sales in specific below listed countries.
Russian language support	Release 2 will add further updates and improvements on Russian language

List of countries/regions with approved Wi-Fi certification	Exception
USA	
EU + UK, Iceland, Lichtenstein, Norway, Switzerland	
Israel	
RUR: Russia, Belarus, Kazakhstan, Armenia, Kyrgyzstan, Ukraine	
China: Certification for AK-SM 850A and AK-SM 880A	AK-SM 820A will follow
Australia & New Zealand	
Turkey	
Morocco	
Brazil	

## New Multi-Refrigerants Evolution Allowing A2L (A1) for Condensing Units Optyma™ Plus and Slim Pack



Danfoss is launching the new Optyma Plus and Optyma Slim Pack multi-refrigerant condensing unit evolution, adding the use of A2L slightly flammable refrigerants R454C, R455A and R1234yf.

Our existing A1 versions will remain unchanged and continue to be available even though models will be progressively replaced by new versions. The refrigerant letter, code models, equipment, designation, and performance for these models will all be changed.

### Feature and benefits

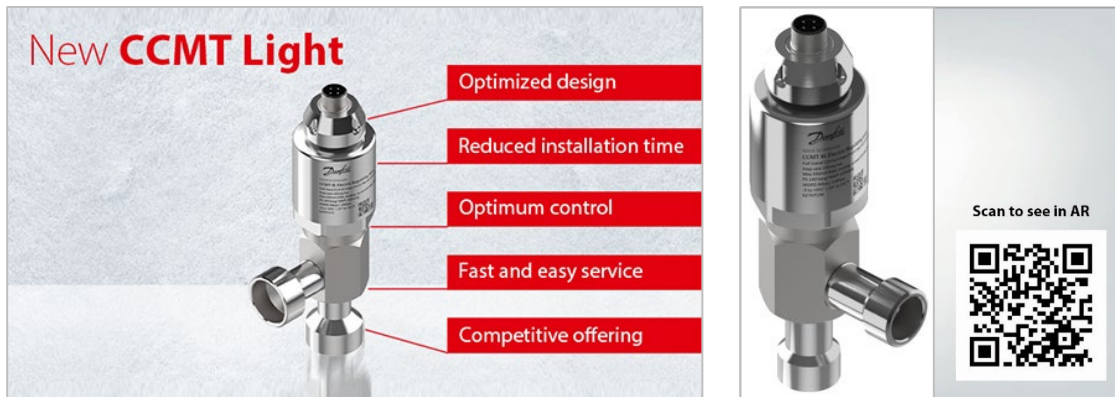
- Operating envelopes remain identical with the addition of
  - Allowing multi-refrigerant use, including low-GWP A2L refrigerants
  - Providing a range validated for the use of A2L refrigerants without additional risks of ignition

### Available documents

- Instruction manuals:
  - [Optyma Plus](#)
  - [Optyma Plus controller](#)
  - [Optyma Slim Pack](#)
- [Commercial brochure](#)
- Declaration of conformity (Upon request, please contact local Customer Service)
  - A1 condensing units
  - A1/A2L condensing units
  - Component's declaration
- Condensing unit performance data with A2L refrigerants is available in [CoolSelector2](#)
- For easy start-up, see the [Kool Code video](#) or [download the app](#) directly

Please contact your local Danfoss contact for more information about the impact for each product and other solutions Danfoss can offer. Alternatively, you can consult instructions on the [Danfoss YouTube channel](#).

## Electric Regulating Valves CCMT Light with Higher Kv Values



Danfoss is pleased to announce that we are now ready to offer the CCMT 10L with higher Kv values of 1,1m<sup>3</sup>/h. At the same time, we are releasing the CCMT 3L, 5L, 8L and 10L which are now approved to work as expansion valves for evaporators. In addition, these valves are capable of functioning either as a pressure regulator for gas coolers or as a gas bypass valve with backpressure regulation in transcritical applications. This release contains UL approval for the whole CCMT Light range.

The CCMT Light is designed for supermarkets, convenience stores, small food stores, cold rooms, and light industrial applications.

### Design features

- Bi-polar stepper motor valve
- Angled valve housing
- Bi-metal and steel connections
- Fully serviceable insert module

### Specifications

- Refrigerant media - R744
- Capacity - Kv 0.26 to 1,1 m<sup>3</sup>/h / Cv 0.3 to 1,28 gpm
- Max. working pressure/Connections:
  - 130 bar / 1885 psig, Bi-metal: 3/8 in. (9.52 mm) and 1/2 in. (12.7 mm)
    - 120 bar / 1740 psig for UL approval with Bi-metal connections
  - 140 bar / 2030 psig, steel: 5/8 in. (15.9 mm) and 7/8 in. (22.2 mm)
- Electrical connection - M12
- Compact and light weight - 670 g / 1.48 lbs.

### Benefits

- Saves time in production and lowers field service costs with unique connections
- Offers the most robust and least dirt sensitive solution for best system performance
- Ensures safety due to their optimized size and 100 % leak check at the factory

The CCMT Light is currently available, using the code numbers on the table below.

Type	Connections [in]		Flow rate		Packing format	Code no.
	Bi-metal	Steel	kv [m <sup>3</sup> /h]	Cv [gpm]	Single pack	
CCMT 3L	3/8 × 3/8	-	0.26	0.3	1	027H7239
CCMT 3L	1/2 × 1/2	-	0.26	0.3	1	027H7240
CCMT 3L	-	5/8 × 5/8	0.26	0.3	1	027H7241
CCMT 3L	-	7/8 × 7/8	0.26	0.3	1	027H7273
CCMT 5L	3/8 × 3/8	-	0.5	0.57	1	027H7242
CCMT 5L	1/2 × 1/2	-	0.5	0.57	1	027H7243
CCMT 5L	-	5/8 × 5/8	0.5	0.57	1	027H7245
CCMT 5L	-	7/8 × 7/8	0.5	0.57	1	027H7274
CCMT 8L	3/8 × 3/8	-	0.8	0.92	1	027H7275
CCMT 8L	1/2 × 1/2	-	0.8	0.92	1	027H7247
CCMT 8L	-	5/8 × 5/8	0.8	0.92	1	027H7250
CCMT 8L	-	7/8 × 7/8	0.8	0.92	1	027H7272
CCMT 10L	1/2 × 1/2	-	1.10	1.28	1	027H7277
CCMT 10L	-	5/8 × 5/8	1.10	1.28	1	027H7278
CCMT 10L	-	7/8 × 7/8	1.10	1.28	1	027H7279

#### Available documentation

[Data Sheet](#), [Installation Guide](#), [CCMT product family site](#), [Two pager Overview](#), [3D model](#)

#### How to YouTube videos



[How to weld steel connections on a CCMT Light valve for CO2](#)

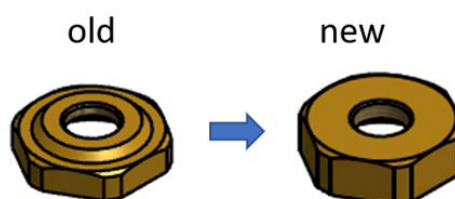
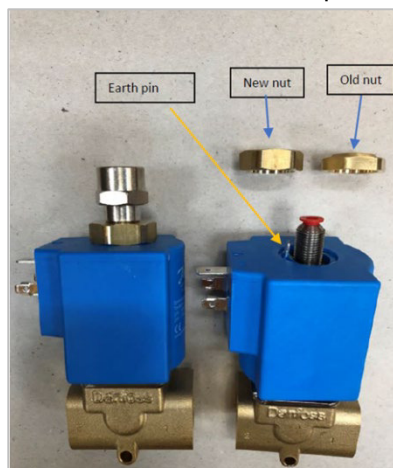
[How to braze steel connections on a CCMT light valve](#)

[How to braze bi-metal connections on a CCMT light valve](#)

## EV310B with New Nut to Fasten Coils

As from week 12-2021 the design on Brass nut (screw) to fasten coils to EV310B has been changed to fit coil earth pin connection on BB / BE coils without clip on. Before the change only BA and BD coils could be fitted.

It means all B coils without clip on can be used with EV310B valves.



Material is changed from normal brass to Eco brass, CV724R (Lead free and dezincification resistant brass).

Please note that the height is increased from 6,2 to 7,2 mm. For further details please contact the local Customer Service.

## Locked Rotor Amp Modification on MTZ/MT18, 19, 22 and NTZ048, 068, 096 Code 1 Compressors



Model	LRA [A]	
	Previous	New
MTZ18-1; T18-1	66	53
MTZ19-1; T19-1	66	53
MTZ22-1; T22-1	49	53
NTZ048A1L	51	52
NTZ068A1L	72	76
NTZ096A1L	107	112

In February 2021, the locked rotor amp (LRA) values of following compressors were changed for MTZ/MT18, 19, 22, and NTZ048, 068, 096 code 1 (208-230V/1~/60Hz). At the same time, the compressor UL file was updated. The LRA values have been updated based on lab test revisions. The LRA value is the highest current measured on a mechanically blocked compressor under nominal voltage. Please note that other current characteristics of the compressor, such as maximum continuous current (MCC) or maximum operating current (MOC) will remain the same.

This new LRA value will appear on compressor nameplates starting in February 2021. The MT, MTZ, and NTZ guideline and selection tool [CoolSelector 2](#) will be updated accordingly.

## Liquid Level Switch AKS 38 - It's Time to Switch to LLS 4000/4000U



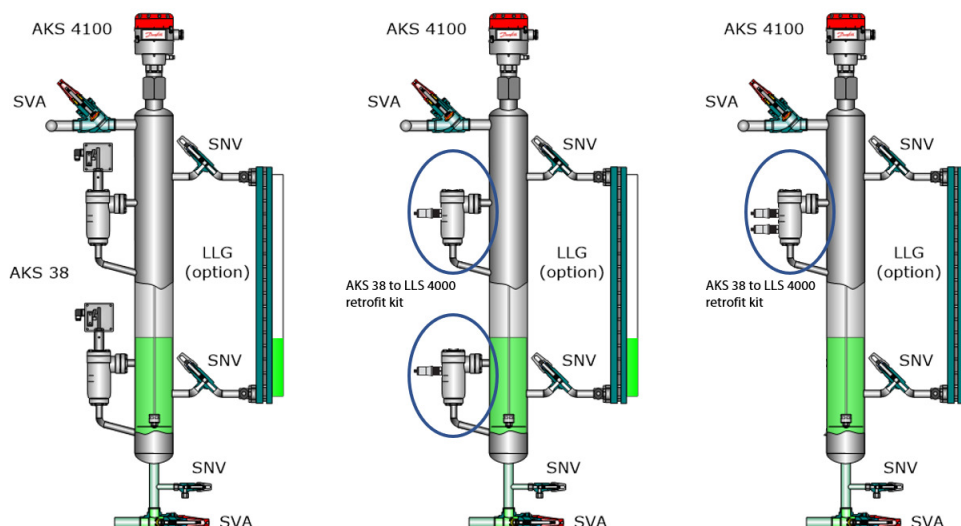
The AKS 38 has served you and us well as a good product for Industrial Refrigeration applications. It can be difficult to imagine but now the time has come where **It's time to switch.**

The LLS 4000/4000U will be able to cover the exact same type of application and is a one Level Switch for several medias that offer an easy setup and high reliability.

### AKS 38 to LLS 4000 retrofit kit

To support the large global installed base of AKS 38, we have developed an AKS 38 to LLS 4000 retrofit kit. With this retrofit kit we offer a solution, where it will be possible to upgrade existing AKS 38 to LLS 4000/4000U.

The retrofit kit is an easy, one to one, mechanical fit and it comes with one LLS 4000/4000U G ¾ in. If needed, in total two pcs LLS 4000/4000U can be installed. With this solution we can support both High- and Low-level alarm applications, as well a simple ON/OFF level control.

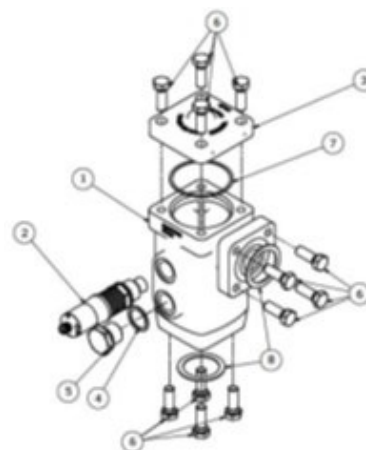


Sales code	Description
148H3504	AKS 38 to LLS 4000 retrofit kit

To learn more about how the new LLS 4000/LLS 4000U can save time and money during installation and how this standardized solution can improve operational safety and efficiency please contact your local Danfoss representative or visit [liquidlevelswitch.danfoss.com](http://liquidlevelswitch.danfoss.com)

For proper planning, please observe important dates below:

- Last AKS 38 orders: **End September 2022**
- Latest AKS 38 delivery: **December 2022**



## Expanded Liquid Level Switch LLS 4000/4000U

We are pleased to announce the next update of the Danfoss LLS 4000/4000U Liquid Level switch program, that will expand the product with further new features and benefits.

With release 2, we expand the coverage area of LLS 4000/4000U with both new refrigerants as well as the ability to detect oil in selected applications.

LLS 4000 can now detect the following new medias

- HCFC refrigerants
  - R513a, R507a, R407a
- HPO refrigerant
  - R1234ze with miscible (POE) oils
- Oils
  - PAO, POE and Mineral oils in NH3/Freon systems (Gas temperature < 80°C (176°F))
  - Practically this means we can offer LLS 4000/4000U for:

	Low stage	High stage
Oil pots	OK	OK
Compressor crank cases	OK	OK
Oil separators	Contact Danfoss	Contact Danfoss



### Higher pressure rating

With this release we increase the max. working pressure to 140 bar (2031 psi).

### New accessories

We expand our accessories for LLS 4000/4000U with an NPT weld connector and G pipe thread connector in stainless steel.

### Observe

We now recommend using straight M12 connector instead of angle M12 connector. Use of straight M12 connector on LLS 4000/4000U have demonstrated to be more robust than use of angle M12 connector.

Sales code	Description
084H6014	Weld connector G 3/4" Stainless Steel – <b>available June 2021</b>
084H6015	Weld connector NPT 3/4" (excl. Teflon tape)
034G2201	M12 Danfoss female straight cable, 2 meter (6.6 ft)
034G2200	M12 Danfoss female straight cable, 8 meter (26.2 ft)
148H3504	AKS 38 to LLS 4000 retrofit kit

### Product sales code numbers

Sales code	Description
084H6001	LLS 4000 liquid level switch (excl. welding connector & M12 cable) G 3/4"
084H6002	LLS 4000 SIL2 liquid level switch (excl. welding connector & M12 cable) G 3/4"
084H6003	LLS 4000U liquid level switch (excl. welding connector & M12 cable) NPT 3/4"
084H6004	LLS 4000U SIL2 liquid level switch (excl. welding connector & M12 cable) NPT 3/4"

## Discontinuation of Liquid Level Regulating Valves PMFH/PMFL

The PMFH/PMFL valves are now being phased out.

PMFH & PMFL are liquid level regulating valves controlled by a pilot float valve, they are used in refrigerating systems with ammonia or fluorinated refrigerants for controlling the liquid level of vessels.

PMFH/ PMFL are based on PM valve family housing and are the last type of this family that remain available. All other types, based on PM family housing, have been already phased out; and now is time for PMFH / PMFL as well.

Danfoss IRF portfolio offers multiple products that can deliver the function of liquid level regulation alternatively to PMFH/PMFL; and have been over the years replacing the use of PMFH/L, specially the electronic solution due to the advantages offered and the trend in the industry towards electronic controls. These include the AKS 4100 and LLS 4000.

- Last PMFH/PMFL orders: 8th October 2021
- Last PMFH/PMFL delivery: December 2021

Spare part kits will remain available.



## Details for Additional Information

### UK/IE

[Cooling United Support Hub](#)

[Support Made Easy](#)

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Customer Service UK & IE tel: 0330 808 6888

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