

Data Sheet

# Pack controller Type **AK-PC 782B**

One controller for the entire CO<sub>2</sub> booster pack.



## The flexible AK-PC 782B pack controller delivers highest efficiency.

AK-PC 782B is a powerful and flexible controller that provides precise regulation, improved efficiency, and enhanced user friendliness for pack control in transcritical CO<sub>2</sub> booster packs.

The controller flexibility and efficiency makes it the obvious choice for all sizes of packs in all climates.

## Features

- One controller for the entire CO<sub>2</sub> booster pack
- Robust algorithms warrant safe initial start up and reliable operation
- Easy first-time use with wizard-like set-up
- Scalable to control large booster packs with up to 22 compressors
- Supports variable speed, digital scroll, CR11, Stream and unloader compressors
- Speed control of up to 2 compressors per suction group
- Best fit step control handles mixed compressor sizes
- Control of oil separator and oil receiver
- Liquid injection into suction line option
- Gas cooler capacity control of up to 8 fans
- Gas cooler temperature optimisation with regard to ambient temperature
- Optimal high pressure control
- Improved energy efficiency with Danfoss Multi Ejector™
- Receiver pressure management with four 4 control modes
- Parallel compressor control with model based Smart IT start
- Setpoint management ensuring safe and reliable operation
- Heat recovery management for tap water and space heating
- Support for external Air Conditioning unit KPI and COP calculation to compare and benchmark system efficiency
- General purpose functions with Quick Application Selection for independent control functions
- Local and remote alarm management with readable text descriptions
- Built in LAN with IP communication
- Suction pressure optimisation of for the most heavily loaded refrigeration area
- Injection ON: stop case regulation in case of serious compressor alarms in the rack

## Product specification

### Technical data

Table 1: Technical data

| Features                       | Description   |  |
|--------------------------------|---|--|
| Supply voltage                 | 24 V DC / AC $\pm$ 20%  |  |
| Power consumption              | 8 V A   |  |
| Analogue inputs                | Pt 1000 ohm / 0 °C  | Dissolution: 0.1 °C<br>Accuracy: $\pm$ 0.5 °C  |
|                                | Pressure transmitter type AKS 32R / AKS 2050 / AKS 32 (1 – 5 V)                         | Dissolution 1 mV<br>Accuracy $\pm$ 10 mV<br>Max. connection of 5 pressure transmitters on one module |
|                                | Contact function (ON / OFF)   | On at R < 20 ohm<br>Off at R > 2K ohm<br>(Gold plated contacts not necessary)                        |
| ON / OFF supply voltage inputs | Low voltage<br>0 / 80 V AC / DC   | OFF : U < 2 V<br>ON: U > 10 V  |
|                                | High voltage<br>0 / 260 V AC  | OFF : U < 24 V<br>ON: U > 80 V   |
| Relay outputs SPDT             | AC-1 (ohmic)  | 5 A  |
|                                | AC-15 (inductive)   | 3 A  |
|                                | U   | Min. 24 V - Max. 230 V<br>Low and high voltage must not be connected to the same output group        |
| Solid state outputs            | Can be used for loads that are frequently cut in and out e.g. unloaders, solenoid valve | Max. 240 V AC, Min. 48 V AC - Max. 0.5 A<br>Leak < 1 mA<br>Max. 1 AKV                                |
| Ambient temperature            | During transport  | -40 – 70 °C  |
|                                | During operation  | -20 – 55 °C<br>0 – 95% RH (non condensing) - No shock influences / vibrations                        |
| Enclosure                      | Material  | PC / ABS   |
|                                | Enclosure   | IP10, VBG 4  |
|                                | Mounting  | For mounting on wall or DIN rail   |
| Weight with screw terminals    | Modules in 100- / 200- / controller series  | Approx. 200 g / 500 g / 600 g  |

## Ordering

**Table 2: Ordering - AK-PC 782B**

| Type       | Language   | Code no. |
|------------|--|----------|
| AK-PC 782B | English, German, French, Italian, Spanish, Portuguese, Russian, Chinese <sup>(1)</sup> , Dutch, Danish, Finnish, Polish, Czech | 080Z0202 |

<sup>(1)</sup> Chinese is not available in MMI display. It is available only in PC via ST-500 (Service Tool).

**Table 3: Ordering Accessory - Extension modules and survey for inputs and outputs**

| Type       | Analog inputs                      | ON / OFF outputs |             | ON / OFF supply voltage (DI signal) |                           | Analog out-puts | Stepper out-puts             | Module with switches           | Code no. |
|------------|------------------------------------|------------------|-------------|-------------------------------------|---------------------------|-----------------|------------------------------|--------------------------------|----------|
|            | For sensors, pressure transmitters | Relay (SPDT)     | Solid state | Low voltage (max. 80 V)             | High voltage (max. 260 V) | 0 – 10 V DC     | For valves with step control | For override of relay out-puts |          |
| Controller | 11                                 | 4                | 4           | –                                   | –                         | –               | –                            | –                              | –        |
| AK-XM 101A | 8                                  | –                | –           | –                                   | –                         | –               | –                            | –                              | 080Z0007 |
| AK-XM 102A | –                                  | –                | –           | 8                                   | –                         | –               | –                            | –                              | 080Z0008 |
| AK-XM 102B | –                                  | –                | –           | –                                   | 8                         | –               | –                            | –                              | 080Z0013 |
| AK-XM 103A | 4                                  | –                | –           | –                                   | –                         | 4               | –                            | –                              | 080Z0032 |
| AK-XM 204A | –                                  | 8                | –           | –                                   | –                         | –               | –                            | –                              | 080Z0011 |
| AK-XM 204B | –                                  | 8                | –           | –                                   | –                         | –               | –                            | x                              | 080Z0018 |
| AK-XM 205A | 8                                  | 8                | –           | –                                   | –                         | –               | –                            | –                              | 080Z0010 |
| AK-XM 205B | 8                                  | 8                | –           | –                                   | –                         | –               | –                            | x                              | 080Z0017 |
| AK-XM 208C | 8                                  | –                | –           | –                                   | –                         | –               | 4                            | –                              | 080Z0023 |

**Table 4: Software**

| Type      | Description                              | Code no. |
|-----------|--|----------|
| AK-ST 500 | Software for operation of AK controllers | 080Z0161 |

**Table 5: Remote display**

| Type     | Description                         | Code no. |
|----------|-------------------------------------|----------|
| EKA 163B | Display unit                        | 084B8574 |
| EKA 164B | Display unit with operation buttons | 084B8575 |
| MMIGRS2  | Graphic display with operation      | 080G0294 |

**Table 6: Miscellaneous**

| Type      | Description  | Code no. |
|-----------|--|----------|
| AK-CM 102 | Communication modules for controllers where modules cannot be connected continuously | 080Z0064 |

## Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at [danfoss.com](http://danfoss.com) or contact your local Danfoss representative if you have any questions.

**Table 7: Certificates, declarations, and approvals**

| File name            | Document type                   | Document topic | Approval authority |
|----------------------|---------------------------------|----------------|--------------------|
| RU Д-ДК.ГА02.В.05523 | Electrical - Safety Certificate | EMC/LVE        | EAC                |
| 080R1221.01          | Manufacturer Declaration        | China RoHS     | China              |
| 080R1228.1           | Manufacturers Declaration       | RoHS           | Danfoss            |
| 080R1206.03          | EU Declaration                  | EMCD/LVD/RoHS  | Danfoss            |

## Online support

Danfoss offers a wide range of support along with our products, including digital product information, software, mobile apps, and expert guidance. See the possibilities below.

### The Danfoss Product Store



The Danfoss Product Store is your one-stop shop for everything product related—no matter where you are in the world or what area of the cooling industry you work in. Get quick access to essential information like product specs, code numbers, technical documentation, certifications, accessories, and more.

Start browsing at [store.danfoss.com](https://store.danfoss.com).

### Find technical documentation



Find the technical documentation you need to get your project up and running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more.

Start searching now at [www.danfoss.com/en/service-and-support/documentation](https://www.danfoss.com/en/service-and-support/documentation).

### Danfoss Learning



Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications, industry topics, and trends that will help you do your job better.

Create your Danfoss Learning account for free at [www.danfoss.com/en/service-and-support/learning](https://www.danfoss.com/en/service-and-support/learning).

### Get local information and support



Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert—all in your own language.

Find your local Danfoss website here: [www.danfoss.com/en/choose-region](https://www.danfoss.com/en/choose-region).

---

#### Danfoss A/S

Climate Solutions • [danfoss.com](https://danfoss.com) • +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.

All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.