



# Simplify replacements **Multiply your options**

The new EKC 202C MS controller

# One

**universal controller**

The EKC 202C MS controller is compatible with most NTC sensors on the market to simplify replacements.



# Quick and easy drop-in replacement

The new EKC 202C MS multipurpose controller is an upgrade of the well-known EKC 202 C and has been developed based on market requests. As a result the new controller supports almost any leading brand of NTC sensors – Danfoss as well as non-Danfoss – up to 10k $\Omega$ . The versatile EKC 202C MS can be easily and quickly dropped-in to replace alternative brands of similar controllers in existing systems (on sites or within production assembly processes), while reusing the already installed NTC sensors.

## Less storage space and simple selection

A single code number is all that is required to cover a wide array of refrigeration applications and to replace many of the different controller brands. This simplifies your selection process and reduces the space needed for storage in your van or stock. The EKC 202C-MS controller can be used for a variety of applications from control of air temperatures and defrost to more advanced applications, including control of lights and fans.



**COOL** food and beverages reliably to ensure safety.



**CONTROL** refrigeration, lighting and HVAC centrally.



**CUT BACK** on energy consumption.

## EKC 202C MS – Technical data

|                                           |                                                                                                                                                                          |                                                                         |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Supply voltage                            | 230 V a.c., +10/-15%. 2.5 VA, 50/60 Hz                                                                                                                                   |                                                                         |
| Sensors                                   | Multisensor: various NTC sensors – M2020 (5000 ohm /25 °C)                                                                                                               |                                                                         |
| Accuracy                                  | Measuring Range:                                                                                                                                                         | -40 °C to +30 °C                                                        |
|                                           | Controller                                                                                                                                                               | ± 1K below -35 °C<br>± 0.5K between -35 to +25 °C<br>± 1 K above +25 °C |
| Display                                   | Led, 3 DIGITS                                                                                                                                                            |                                                                         |
| Digital inputs                            | Signal from contact functions.<br>Requirements to contacts: Gold plating<br>Cable length must be max. 15m<br>Use auxiliary relays when the cable is longer               |                                                                         |
| Electrical Connection cable               | Max. 1.5mm <sup>2</sup> multi-core cable<br>Max. 1mm <sup>2</sup> on sensors and DI inputs                                                                               |                                                                         |
| Relays*                                   | DO1                                                                                                                                                                      | 10 (6) A (CE), 10 A Resistive 5FLA, 30LRA (UL ***)                      |
|                                           | DO2                                                                                                                                                                      | 10 (6) A (CE), 10 A Resistive 5FLA, 30LRA (UL ***)                      |
|                                           | DO3                                                                                                                                                                      | 6 (3) A (CE) , 6 A Resistive 3FLA, 18LRA, 131 VA Pilot duty (UL ***)    |
|                                           | DO4                                                                                                                                                                      | 4 (1) A Min. 100 mA** (CE), 4 A Resistive 131 VA Pilot duty (UL ***)    |
| Environment                               | 0 to +55 °C, During operations<br>-40 to +70 °C, During transport<br>20-80% Rh, not condensed<br>No shock influence/vibrations                                           |                                                                         |
| Enclosure                                 | IP 65 from front                                                                                                                                                         |                                                                         |
| Time clock function reserve without power | 4 hours                                                                                                                                                                  |                                                                         |
| Approvals                                 | EU Low Voltage Directive and EMC demands re CE-marking complied with<br>LVD tested acc. EN 60730-1, EN60730-2-1, EN60730-2-3<br>EMC tested acc. EN61000-6-2, EN61000-6-3 |                                                                         |

\* DO1 and DO2 are 16 A relays. DO3 and DO4 are 8 A relays. Max. load must be kept. \*\* Gold plating ensures make function with small contact loads \*\*\* UL-approval based on 30000 couplings

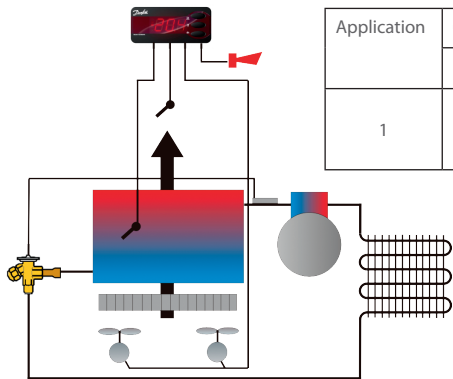
## Ordering

| Type        | Description                                                                 | Code number |
|-------------|-----------------------------------------------------------------------------|-------------|
| EKC 202C MS | Multisensor: various NTC sensors – M2020 (5000 ohm/25 °C)                   | 084B8543    |
| Accessories |                                                                             |             |
| EKA 178A    | Data communication module MODBUS                                            | 084B8564    |
| EKA 179A    | RS485 LON                                                                   | 084B8565    |
| EKA 181A    | Battery & Buzzer                                                            | 084B8566    |
| EKA 181C    | Battery module that will protect the clock in case of lengthy power failure | 084B8577    |
| EKA 182A    | Copy key EKC – EKC                                                          | 084B8567    |
| EKA 183A    | Programming key EKC                                                         | 084B8582    |
| EKS 211     | NTC 5000 Sensor 1.5 m                                                       | 084N1220    |
| EKS 221     | NTC 10000 Sensor 3.5 m                                                      | 084N3210    |

# EKC 202C MS – Functions

| Thermostat                                                                                                                                                                                                                                          | Fan                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Sensors: various NTC sensors (see below)</li><li>Day/night control</li><li>Thermostat band</li><li>Alarm thermostat with delay</li></ul>                                                                      | <ul style="list-style-type: none"><li>Fan delay during defrost</li><li>Fan stop when compressor cuts out</li><li>Fan stop at high S5 temperature</li></ul>                                                                         |
| Defrost                                                                                                                                                                                                                                             | Compressor                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"><li>Electrical, natural or simple hot gas defrost</li><li>Start via DI input, time interval or schedule (RTC)</li><li>Defrost on demand</li><li>Stop on time or temperature</li><li>Coordinated defrost</li></ul> | <ul style="list-style-type: none"><li>Anti cycle timers for optimum protection</li><li>High-effect 16A relays for connection of compressors without use of intermediate relays</li></ul>                                           |
| Light control                                                                                                                                                                                                                                       | Other functions                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"><li>Light control of day/night, door or via network</li></ul>                                                                                                                                                     | <ul style="list-style-type: none"><li>S5 sensor can be used for other applications such as a product sensor</li><li>Door function with alarm monitoring</li><li>Manual control of outputs</li><li>Case cleaning function</li></ul> |
| DI input                                                                                                                                                                                                                                            | Supplementary options                                                                                                                                                                                                              |
| <ul style="list-style-type: none"><li>Multi purpose DI input for defrost start, door function, night setback, main switch, appliance cleaning, general alarm, defrost coordination &amp; thermostat band</li></ul>                                  | <ul style="list-style-type: none"><li>RS 485 network card for connection to network</li><li>Battery back-up card for real time clock</li><li>"Copy key" &amp; "Programming key"</li></ul>                                          |
| EKC 202C-MS supports various NTC sensors from many suppliers – see examples below                                                                                                                                                                   |                                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"><li>Danfoss: EKS 211 (5kΩ @ 25 °C / EKS 221 (10kΩ ± 1% @ 25 °C)</li><li>Carel: HP/WF/WP/INF (10kΩ ± 1 @ 25 °C)</li><li>Dixel: NS/NG/NX/NY/NT</li><li>Frigo: M841 (3kΩ @ 25 °C)</li></ul>                          | <ul style="list-style-type: none"><li>Elliwell: SN8 (10kΩ ± 1% @ 25 °C)</li><li>Wurm: TRK277 (2.5kΩ @ 0 °C) / T2000 (10kΩ @ 25 °C)</li><li>LAE: SN4K..P (10kΩ @ 25 °C) / SN2K..P (2kΩ @ 25 °C)Sensor</li></ul>                     |

## Electrical connections and applications



| Application | Output |     |     |     | Input |    |     |
|-------------|--------|-----|-----|-----|-------|----|-----|
|             | DO1    | DO2 | DO3 | DO4 | Sair  | S5 | Di1 |
| 1           |        |     |     |     |       |    |     |

The example is showing electrical wiring diagram for application 1 of EKC 202C MS.



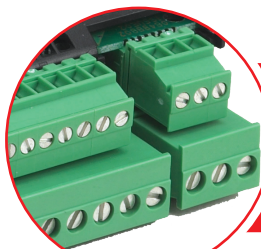
**Compact hardware design and option modules:** Integration of 230 V a.c. voltage supply, four relays and built-in "super cap" real time clock without compromising the dimensions. A selection of supplementary modules makes it possible to extend the functionality further with options such as RS 485 network card and battery back-up.

**Simple installation:**

High effect relays enables direct connection of high loads like compressor and defrost heaters without using intermediate relays.



**Now with NTC sensor support:** Applicable for NTC sensors from Danfoss and other suppliers.



**Plug connectors:**

Easy installation via high quality plug connectors.

**Easy mounting:**

Integrated mounting brackets makes panel mounting fast and easy.



**Easy to read:**

High efficient LED display with integrated icons to show control status.

**Easy operation and IP 65 rating guaranteed:**

Danfoss' innovative plastic moulding technology has made it possible to integrate push buttons as well as front packing in the controller's front panel, securing IP 65 protection. The 3 Buttons with mechanical feedback makes operation very easy.



## The Danfoss product range for the refrigeration and air conditioning industry

Danfoss Refrigeration & Air Conditioning is a worldwide manufacturer with a leading position in industrial, commercial and supermarket refrigeration as well as air conditioning and climate solutions.

We focus on our core business of making quality products, components and systems that enhance performance and reduce total life cycle costs – the key to major savings.



*Controls for  
Commercial Refrigeration*



*Controls for  
Industrial Refrigeration*



*Electronic Controls &  
Sensors*



*Industrial Automation*



*Household, light  
commercial and direct  
current compressors*



*Commercial Compressors*



*Condensing units*



*Thermostats*



*Heat exchangers*

We offer a single source for one of the widest ranges of innovative refrigeration and air conditioning components and systems in the world. And, we back technical solutions with business solutions to help your company reduce costs, streamline processes and achieve your business goals.

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