Danfoss 084B8523

Danfoss EKC 202C Refrigeration Appliance Control User Manual

Model: 084B8523 | Brand: Danfoss

1. Introduction and Overview

The Danfoss EKC 202C (Model 084B8523) is an advanced electronic controller designed for refrigeration appliances. It features two temperature sensor inputs and two control outputs, operating on an AC230V power supply at 50/60Hz. This unit supports LON/MODBUS communication protocols, enabling integration into larger control systems. Its primary function is to precisely manage and monitor refrigeration processes, ensuring optimal performance and energy efficiency.

2. Safety Information

WARNING: Risk of Electric Shock

- Always disconnect power to the appliance before installation, maintenance, or troubleshooting.
- Installation and servicing must be performed by qualified personnel only, in accordance with all local and national electrical codes.
- Ensure proper grounding of the unit.
- Do not operate the unit with damaged wiring or if it has been exposed to moisture.

Read all instructions carefully before installing or operating the EKC 202C controller.

3. Product Description and Features

The EKC 202C controller is a compact and robust electronic device. Its front panel features a clear digital display for temperature readings and operational status, along with intuitive buttons for navigation and setting adjustments. The rear panel provides clearly labeled terminals for power, sensor inputs, and output connections.

Figure 1: Danfoss EKC 202C Refrigeration Appliance Control Unit. This image shows the front and side view of the black electronic controller with a red digital display, control buttons on the right, and green terminal blocks on the top and rear for electrical connections. Labels for power, sensors, and outputs are visible on the unit's casing.

Key Features:

- **Dual Temperature Sensor Inputs:** Allows for precise monitoring of two distinct temperature zones or differential control.
- **Two Control Outputs:** Enables control of two independent refrigeration components, such as compressors, fans, or defrost heaters.
- **AC230V Power Supply:** Standard voltage for industrial and commercial applications.
- **LON/MODBUS Communication:** Facilitates integration into building management systems (BMS) or supervisory control and data acquisition (SCADA) systems for remote monitoring and control.
- **Digital Display:** Provides real-time temperature readings and operational status.
- **User-Friendly Interface:** Simple button layout for easy parameter adjustment.

4. Installation and Setup

Proper installation is crucial for the reliable operation of the EKC 202C. Refer to the wiring diagram provided on the unit's label and in the full technical documentation for detailed connection instructions.

4.1 Mounting

The EKC 202C is designed for panel mounting. Ensure adequate space for ventilation and access to wiring terminals. Secure the unit firmly using the provided mounting clips or screws.

4.2 Wiring

1. **Power Supply (230V AC, 50/60Hz):** Connect the Live (L) and Neutral (N) wires to the designated power terminals. Ensure proper grounding (GND) connection.
2. **Temperature Sensors:** Connect the two temperature sensors to the respective sensor input terminals (e.g., S1, S2). Observe polarity if applicable.
3. **Outputs:** Connect the controlled devices (e.g., compressor, fan) to the output relay terminals (e.g., DO1, DO2). Ensure the load current does not exceed the specified maximum rating.
4. **Communication (LON/MODBUS):** If integrating into a network, connect the communication bus wires to the LON/MODBUS terminals as per the network's specifications.

After all connections are made, double-check wiring for correctness and security before applying power.

4.3 Initial Configuration

Upon first power-up, the controller may require initial parameter settings. Refer to the detailed programming guide for specific menu navigation and parameter adjustments, including:

- Setting desired temperature setpoints.
- Configuring defrost cycles.
- Adjusting alarm thresholds.
- Calibrating sensors if necessary.

5. Operation

The EKC 202C operates automatically once configured. The digital display shows the current temperature reading from the primary sensor. The control buttons allow for monitoring and adjustment of parameters.

5.1 Display Indicators

The red digital display indicates the measured temperature or a parameter value during configuration. Additional icons or segments may illuminate to indicate operational status (e.g., compressor running, defrost active, alarm condition).

5.2 Button Functions

- **SET Button:** Used to enter parameter setting mode or confirm a selection.
- **Up/Down Arrows (or similar icons):** Used to navigate through menus, increase or decrease parameter values.
- **Function Button (e.g., light bulb icon):** May activate specific functions like manual defrost or light control, depending on configuration.

Consult the full programming manual for a comprehensive list of menu structures and parameter definitions.

6. Maintenance

The Danfoss EKC 202C is designed for long-term, reliable operation with minimal maintenance.

- **Cleaning:** Periodically wipe the front panel with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure no liquid enters the unit.
- **Connections:** Annually inspect all electrical connections to ensure they are secure and free from corrosion.
- **No User-Serviceable Parts:** The internal components of the controller are not user-serviceable. Do not attempt to open or repair the unit. Refer all servicing to qualified technicians.

7. Troubleshooting

Before contacting technical support, perform the following basic checks:

Problem	Possible Cause	Solution
Display is blank / No power	No power supply; Blown fuse; Incorrect wiring.	Check power source and circuit breaker. Verify wiring connections (L, N, GND). Check for blown fuses in the control panel.
Incorrect temperature reading	Faulty sensor; Loose sensor connection; Sensor placed incorrectly.	Check sensor wiring and connections. Ensure sensor is correctly positioned. Test sensor resistance if possible. Replace sensor if faulty.
Outputs not activating	Incorrect setpoint; Parameter misconfiguration; Faulty relay; Overload.	Verify setpoints and differential settings. Check output wiring. Ensure connected load is within relay specifications. Review configuration parameters.
Communication error	Incorrect bus wiring; Address conflict; Network issue.	Check LON/MODBUS wiring. Verify communication addresses. Consult network administrator.

If the problem persists after performing these checks, contact a qualified service technician or Danfoss technical support.

8. Technical Specifications

Parameter	Specification
Model Number	EKC 202C (084B8523)
Brand	Danfoss
Power Supply	230V AC, 50/60Hz
Power Consumption	2.5 VA
Temperature Sensor Inputs	2
Control Outputs	2
Communication	LON/MODBUS
Dimensions (L x W x H)	22.86 x 17.78 x 12.7 cm (approx.)
Weight	1.81 kg (approx.)

Parameter	Specification
Material	Plastic
Certifications	CE, cURus, Intertek
Manufacturer	Danfoss

9. Warranty and Support

For information regarding the warranty period and terms for your Danfoss EKC 202C controller, please refer to the documentation provided at the time of purchase or contact your authorized Danfoss distributor or seller directly. Warranty details may vary by region and supplier.

For technical support, detailed programming guides, or service inquiries, please visit the official Danfoss website or contact their customer service department. When contacting support, please have your product model number (EKC 202C or 084B8523) and serial number (if applicable) ready.

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