Danfoss ERC213 (080G3265)

Danfoss ERC213 Multipurpose Temperature Controller User Manual

Model: ERC213 (080G3265)

1. Introduction

The Danfoss ERC213 (080G3265) is a versatile electronic temperature controller designed for a wide range of refrigeration applications. This multipurpose controller is engineered to meet modern commercial refrigeration requirements, offering precise temperature management, energy efficiency, and robust protection features. It is suitable for various systems requiring accurate temperature regulation and control of associated components like compressors and fans.

2. Safety Information

Please read this manual carefully before installation, operation, or maintenance of the ERC213 controller. Failure to follow these instructions could result in equipment damage, personal injury, or death. Keep this manual for future reference.

- Always disconnect power before performing any installation, wiring, or maintenance procedures.
- Installation and servicing must be performed by qualified personnel only, in accordance with all local and national electrical codes.
- Ensure the supply voltage matches the controller's specifications (197-250V AC).
- Protect the controller from moisture, dust, and extreme temperatures.
- Do not open the controller casing unless specifically instructed to do so by Danfoss technical support.

3. Product Overview

3.1. Components and Display

The Danfoss ERC213 features a clear LED display and intuitive push-button controls for easy operation and monitoring.

Figure 3.1: Frontal view of the Danfoss ERC213 controller, showing the digital display and control buttons.

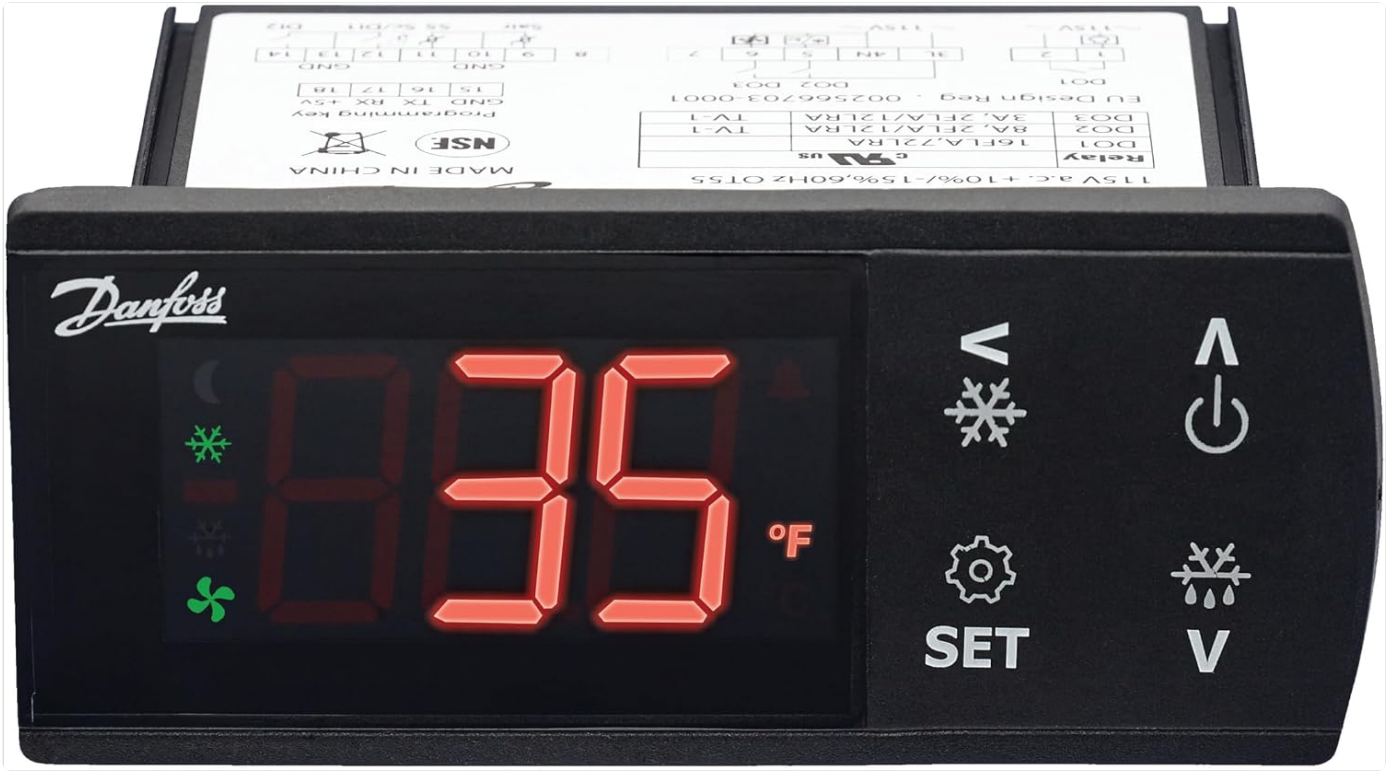

Figure 3.2: Detailed view of the ERC213's LED display showing a temperature reading of 35°F, along with various status icons and control buttons.

3.2. Control Buttons

- **Up Arrow (↑):** Used to increase values or navigate up in menus.
- **Down Arrow (↓):** Used to decrease values or navigate down in menus.
- **Power Button ( ):** Toggles the controller's power on/off.
- **SET Button:** Enters the parameter setting mode or confirms a selection.
- **Defrost/Fan Button (Snowflake/Fan icon):** Initiates manual defrost or controls fan operation.

4. Installation

4.1. Mounting

The ERC213 controller is designed for panel mounting. Ensure adequate space for ventilation and wiring connections.

Figure 4.1: Side view of the ERC213 controller, illustrating the integrated mounting clips for secure panel installation.

- Cut a rectangular opening in the panel according to the controller's dimensions (refer to specifications for exact cutout size).
- Insert the controller into the opening from the front.
- Secure the controller using the integrated mounting clips on the sides.

4.2. Wiring

All wiring must comply with local and national electrical codes. Refer to the wiring diagram provided with the product for specific connection points. Ensure proper grounding.

- Connect the main power supply (230V AC) to the designated terminals.
- Connect temperature sensors (NTC 5K and 10K, Pt1000, PTC) to the sensor inputs.
- Connect the compressor, fan, and defrost heater loads to the respective relay outputs. The controller features 16A relays for robust connections.
- Utilize the multi-purpose digital inputs for functions such as defrost start, day/night control, or door open alarms.

5. Setup

5.1. Initial Power-Up

Upon initial power-up, the controller will perform a self-test. The display will show the current temperature reading from the primary sensor.

5.2. Basic Configuration

To access and modify parameters:

1. Press and hold the **SET** button for a few seconds to enter the parameter menu.
2. Use the **Up** and **Down** arrows to navigate through the parameters.
3. Press **SET** to select a parameter and view its current value.
4. Use the **Up** and **Down** arrows to change the value.
5. Press **SET** again to confirm the new value.
6. To exit the menu, press and hold the **SET** button, or wait for the timeout.

Key parameters to configure include:

- **Set Point (SP):** The desired temperature for your application.
- **Differential (DIF):** The temperature difference between cut-in and cut-out.
- **Temperature Unit (C/F):** Select Celsius or Fahrenheit.
- **Defrost Parameters:** Interval, duration, and termination methods.

6. Operating the Controller

The ERC213 is designed for intuitive operation, providing precise control over refrigeration cycles.

Figure 6.1: Overview of ERC21X series features, highlighting energy efficiency, unit protection, and simple installation.

6.1. Temperature Control

The controller maintains the set temperature by activating and deactivating the compressor based on sensor readings and configured parameters. It supports various thermostat modes including On/Off, day/night, continuous cycle, and emergency mode.

6.2. Defrost Function

The ERC213 supports natural, electrical, and hot gas defrost methods. It features "defrost on demand" functionality, which optimizes energy consumption by initiating defrost cycles only when necessary. Defrost can be started via a front button, digital input, or time interval.

6.3. Evaporator Fan Management

The controller includes smart evaporator fan management for energy saving, including a fan delay function and fan stop at high evaporator temperature.

6.4. Alarms

The ERC213 provides comprehensive alarm functions to alert users to potential issues:

- High and low temperature alarm
- Sensor failure alarm
- High and low voltage alarm
- Condenser cleaning alarm
- Door open alarm
- External alarm input

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your ERC213 controller.

- **Cleaning:** Gently wipe the display and casing with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Connections:** Periodically check all electrical connections to ensure they are secure and free from corrosion.
- **Ventilation:** Ensure that the ventilation openings on the controller are not obstructed to prevent overheating.

8. Troubleshooting

This section provides solutions to common issues you might encounter with your ERC213 controller.

Problem	Possible Cause	Solution
Display is blank	No power supply; faulty wiring.	Check power connections and circuit breaker. Ensure correct voltage.
Temperature reading is inaccurate	Faulty sensor; sensor not properly connected or placed.	Check sensor wiring. Verify sensor type and placement. Replace sensor if necessary.
Compressor not running	Set point not met; alarm active; compressor protection delay.	Adjust set point. Check for active alarms. Wait for protection delay to clear.
Defrost not initiating	Defrost parameters incorrect; sensor issue.	Verify defrost settings. Check defrost sensor.

9. Technical Specifications

Detailed specifications for the Danfoss ERC213 (080G3265) controller.

Figure 9.1: Features and capabilities of the ERC21X series, including thermostat, defrost, fan, compressor, alarm, and display functions.

Parameter	Value
Model	ERC213 (080G3265)
Supply Voltage	197 - 250 V AC
Max Supply Voltage	250 V AC
Min Supply Voltage	197 V AC
Relay Outputs	Multiple, including 16A relays for compressors
Sensor Compatibility	NTC 5K, 10K, Pt1000, PTC
Display	High efficient LED display
Dimensions (Package)	4 x 4 x 3 inches

Parameter	Value
Item Weight	1 pound
Manufacturer	Danfoss

10. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact Danfoss customer service directly. Ensure you have your product model number (ERC213) and serial number ready when contacting support.
For further assistance, visit the official Danfoss website or contact an authorized Danfoss distributor.

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Example: How do I reset this device or fix this error?

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