MMUNNA ETC-200+

MMUNNA ETC-200+ Temperature Controller

INSTRUCTION MANUAL

1. Introduction

The MMUNNA ETC-200+ is a versatile temperature controller designed for refrigeration and heating applications. It features precise temperature measurement and control, defrost management, temperature calibration, start-up delay protection, and an alarm function for temperature limit excursions. This manual provides essential information for the safe and effective installation, operation, and maintenance of your ETC-200+ unit.

2. Safety Information

- Strictly distinguish the interface connections for the relay, sensor, and power supply. Incorrect wiring can cause damage or malfunction.
- Ensure proper connection of the sensor and power wires.
- Keep the sensor down-lead and power wire at a proper distance from each other to avoid interference.
- Always disconnect power before performing any wiring or maintenance.

3. Product Overview

The ETC-200+ features a clear digital display, control buttons, and terminal blocks for electrical connections. It is designed for panel mounting.

Figure 3.1: Front view of the ETC-200+ Temperature Controller, showing the digital display and control buttons.

Figure 3.2: Control panel with SET, Up (▲), and Down (▼) buttons for operation and parameter adjustment.

4. Specifications

Refer to the table below for detailed technical specifications of the ETC-200+ Temperature Controller.

Feature	Specification
Working Voltage	220V AC (<3W)
Measuring & Controlling Temperature Range	-40°C to 120°C
Resolution	0.1°C (-40°C to 99.9°C); 1°C (other ranges)
Accuracy	±1°C (-40°C to 70°C); <±2°C (other ranges)
Power Supply Voltage	220VAC ± 10%; 50Hz / 60Hz
Relay Contact Capacity (Refrigeration)	10A/220VAC (max load 0.5HP/220VAC)

Feature	Specification
Relay Contact Capacity (Defrost)	10A/220VAC
Sensor Type	NTC sensor (10K/25℃, B value 3435K)
Sensor Length	2.0m (including probe)
Ambient Temperature	0℃ to 60℃
Storage Temperature	-30℃ to 75℃
Relative Humidity	20% to 85% (non-condensing)
Front Panel Size	75mm (L) × 34.5mm (W)
Mounting Size	71mm (L) × 29mm (W)
Product Size	75mm (L) × 34.5mm (W) × 85mm (D)
Item Weight	50 Grams (approx. 1.76 ounces)

Figure 4.1: Physical dimensions of the ETC-200+ unit and the NTC sensor.

5. Setup and Installation

Proper installation is crucial for the safe and accurate operation of the ETC-200+. Ensure all connections are secure and correct.

5.1 Mounting

The ETC-200+ is designed for panel mounting. Cut an opening of 71mm (length) by 29mm (width) in your panel. Insert the controller into the opening and secure it using the provided clips or mounting brackets.

5.2 Wiring Diagram

Refer to the wiring diagram below for connecting the power supply, temperature sensor, compressor (refrigeration output), and defrost heater (defrost output). Ensure all connections are made with appropriate gauge wires and are properly insulated.

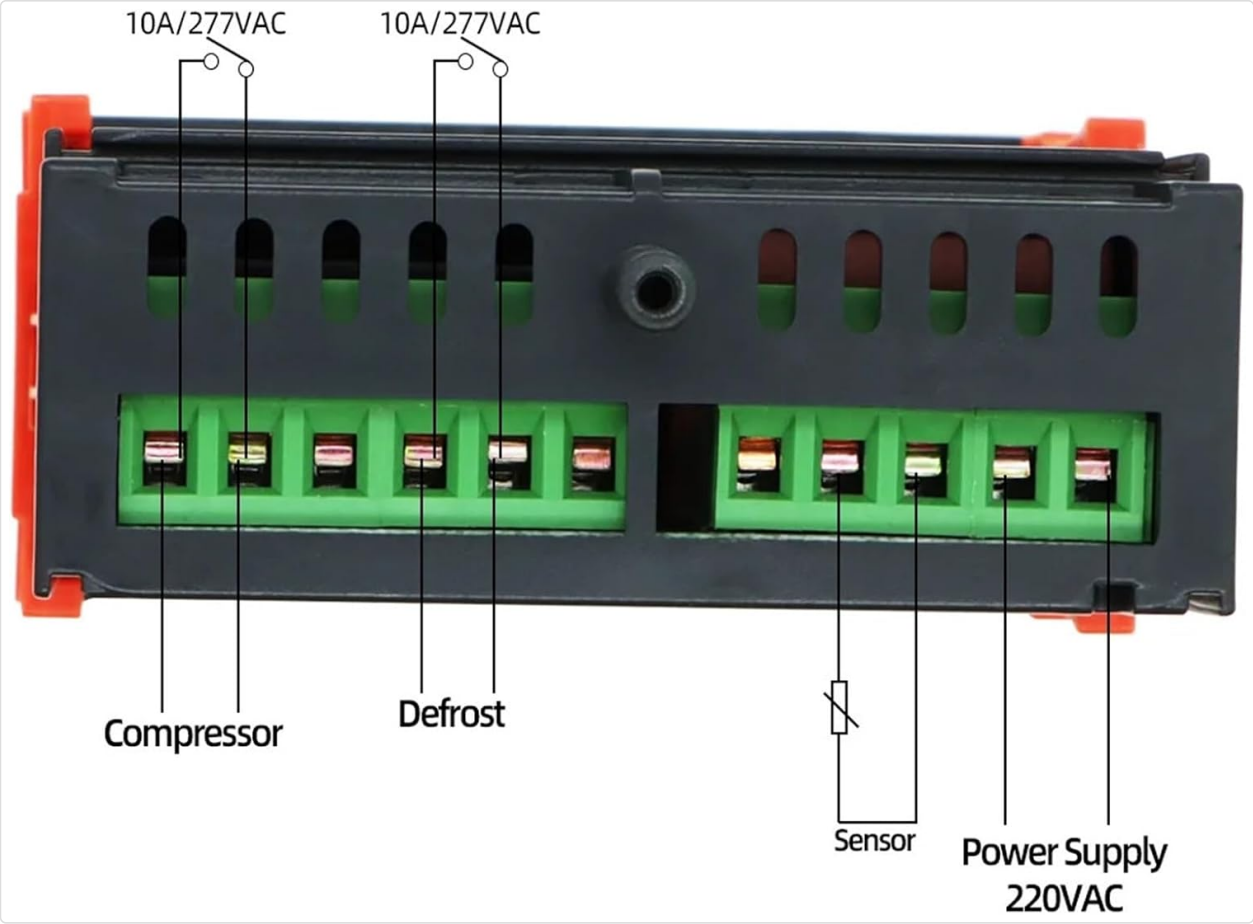

Figure 5.1: Wiring diagram for the ETC-200+ Temperature Controller. Connect 220VAC power to terminals 9 and 10. The NTC sensor connects to terminals 7 and 8. The compressor (refrigeration) output is on terminals 1 and 2. The defrost output is on terminals 4 and 5.

- **Power Supply (220VAC):** Connect the 220VAC power source to terminals 9 and 10.
- **Sensor:** Connect the NTC temperature sensor to terminals 7 and 8.
- **Compressor (Refrigeration Output):** Connect the refrigeration load (e.g., compressor) to terminals 1 and 2. This output has a capacity of 10A/220VAC, with a maximum driving load of 0.5HP/220VAC.
- **Defrost (Defrost Output):** Connect the defrost heater or load to terminals 4 and 5. This output has a capacity of 10A/220VAC.

6. Operating Instructions

The ETC-200+ provides intuitive controls for setting and monitoring temperature.

6.1 Basic Display

The digital display shows the current measured temperature. The unit will display °C (Celsius).

6.2 Setting Temperature and Parameters

To adjust the desired temperature setpoint or other operational parameters:

1. Press the **SET** button once to view the current temperature setpoint.
2. While the setpoint is displayed, use the **▲ (Up)** or **▼ (Down)** buttons to adjust the value.
3. Press **SET** again to confirm the new setpoint and exit.
4. For advanced parameters (e.g., defrost cycle, start-up delay, temperature calibration, alarm limits), a password input may be required. Refer to the detailed parameter list in the full product manual for specific codes and adjustment procedures.

6.3 Refrigeration and Heating Control

The controller can switch between refrigeration and heating modes based on the configured parameters and temperature setpoint. The relay outputs will activate or deactivate the connected compressor or heating element to maintain the desired temperature.

6.4 Defrost Control

The ETC-200+ includes a defrost control function. The defrost cycle and duration can be configured through the advanced parameters to prevent ice buildup in refrigeration systems.

6.5 Alarm Function

The unit will trigger an alarm when the measured temperature exceeds or falls below the set temperature limits. These limits are configurable in the advanced settings.

7. Maintenance

To ensure the longevity and optimal performance of your ETC-200+ Temperature Controller, follow these general maintenance guidelines:

- **Cleaning:** Regularly wipe the front panel with a soft, dry cloth. Avoid using abrasive cleaners or solvents that could damage the display or casing.
- **Connections:** Periodically check all electrical connections to ensure they are tight and free from corrosion.
- **Sensor:** Ensure the temperature sensor is clean and properly positioned for accurate readings. Avoid physical damage to the sensor probe or cable.
- **Ventilation:** Ensure the controller's ventilation openings (if any) are not obstructed to prevent overheating.

8. Troubleshooting

If you encounter issues with your ETC-200+ controller, consider the following common problems and solutions:

- **No Display/No Power:**
  - Check the 220VAC power supply connection to terminals 9 and 10.
  - Verify the power source is active.

- **Incorrect Temperature Reading:**
  - Check the NTC sensor connection to terminals 7 and 8.
  - Ensure the sensor probe is correctly placed and not damaged.
  - Perform a temperature calibration if necessary (refer to advanced parameter settings).
- **Refrigeration/Heating Not Activating:**
  - Verify the set temperature and current temperature.
  - Check the connections to the compressor (terminals 1 and 2) or defrost heater (terminals 4 and 5).
  - Ensure the load (compressor/heater) is functional.
  - Check for any active start-up delays or alarm conditions that might prevent operation.
- **Alarm Constantly On:**
  - Check if the temperature is genuinely outside the set alarm limits.
  - Adjust alarm limits in the advanced parameter settings if they are too restrictive.

For persistent issues or complex problems, please contact MMUNNA customer support.

9. Warranty and Support

For warranty information and technical support, please refer to the product packaging or contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase.