Elitech MTC-5060

Elitech MTC-5060 Digital Temperature Controller User Manual

Universal Thermostat for Cold Room and Refrigerator Cooling/Defrost

1. INTRODUCTION

The Elitech MTC-5060 is a digital temperature controller designed for precise temperature management in cold storage environments such as cold rooms and refrigerators. It features dual screens for simultaneous display of current and set temperatures, along with indicator lights for operational status. The controller supports both cooling and defrosting functions, offering comprehensive temperature control capabilities. This manual provides detailed instructions for the installation, operation, and maintenance of your MTC-5060 temperature controller. Please read this manual thoroughly before installation and use to ensure proper function and safety.

2. SAFETY INFORMATION

- Ensure the power supply matches the controller's specifications (110VAC±10%, 50Hz/60Hz).
- All wiring should be performed by a qualified electrician to prevent electric shock or damage to the unit.
- Do not operate the controller in environments with excessive humidity or corrosive gases.
- Disconnect power before performing any maintenance or wiring.
- The controller is designed for indoor use only.

3. PRODUCT FEATURES

- **Dual Display:** Shows current room temperature and set temperature simultaneously.
- **Cooling and Defrosting Control:** Manages both refrigeration and defrosting cycles.
- **High Accuracy:** Utilizes a high-precision sensor and chip for stable performance and minimal drift.
- **User-Friendly Interface:** Multi-functional button panel for easy parameter setting and operation.
- **Alarm Functions:** Includes high/low temperature alarm and sensor error alarm.
- **EMC Standard Compliance:** Passed industrial four-level tests for stable and reliable operation in harsh environments.

Figure 3.1: Front view of the Elitech MTC-5060 controller, illustrating the dual temperature display and control buttons.

4. Package Contents

Please check the package contents upon receipt. If any items are missing or damaged, contact your supplier immediately.

- Elitech MTC-5060 Digital Temperature Controller (1 unit)
- NTC Sensor Probe (1 unit)
- User Manual (1 copy)

5. Installation and Wiring

5.1 Mounting

The MTC-5060 controller is designed for panel mounting. Ensure adequate space for ventilation and access to wiring terminals.

- **Front Panel Size:** 10.2 cm (L) x 5.1 cm (W)
- **Product Size:** 10.2 cm (L) x 5.1 cm (W) x 8.3 cm (D)
- **Installing Hole Size:** 9.2 cm (L) x 4.4 cm (W)

51mm

82.5mm

°C

Room Temp.

Set Temp.

°C

on temp.

off temp.

comp. delay

def. cycle

def. time

max evap. temp.

Forced Def.

Set View

Forced Ref.

Left Def.T

MTC-5060

100mm

Mounting Size: 92*44mm/3.6*1.7in
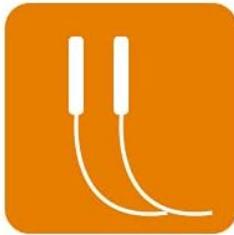
Figure 5.1: Physical dimensions of the MTC-5060 controller.

Figure 5.2: Required mounting hole dimensions for installation.

5.2 Wiring Diagram

Refer to the wiring diagram below for correct electrical connections. Ensure all connections are secure and comply with local electrical codes. The controller operates on 110VAC.

Figure 5.3: Wiring diagram for the MTC-5060 controller. Terminals 1-2 for power, 3-5 for sensors, 6-9 for output loads (cooling and defrosting).

- **Power Supply:** Connect 110VAC to terminals 1 and 2.

- **Sensor Connections:** Connect the NTC sensor(s) to the designated terminals (e.g., 3, 4, 5). The MTC-5060 supports two sensors for storage temperature and defrosting temperature.

- **Output Loads:** Connect cooling and defrosting loads to the respective relay output terminals (e.g., 7-8 for cooling, 8-9 for defrosting). The relay output contact capacity is 3A/110VAC.

6. OPERATING INSTRUCTIONS

The MTC-5060 features a user-friendly interface with dedicated buttons for common functions and parameter settings.

6.1 Display and Indicators

The controller has two digital displays:

- **Upper Display:** Shows the current room temperature.

- **Lower Display:** Shows the set temperature.

Indicator lights provide visual feedback on the operating mode (e.g., cooling, defrosting).

6.2 Setting Temperature

1. Press the **Set** button to view the current set temperature.

2. While the set temperature is displayed, use the **Up** and **Down** arrow buttons to adjust the desired temperature value.

3. Press the **Set** button again to confirm and save the new setting.

6.3 Defrosting Control

The MTC-5060 supports automatic and manual defrosting.

- **Automatic Defrost:** Configured through parameters (defrost cycle, defrost time). Refer to the detailed parameter settings section (if available in full manual) for adjustment.

- **Manual Defrost:** Press the **Forced Def.** button to initiate a manual defrost cycle.

Figure 6.1: Illustrates the "Forced Def." button for manual defrost initiation.

6.4 Parameter Settings

Advanced parameters such as compressor delay, defrost cycle, defrost time, and temperature calibration can be accessed and adjusted. Consult the full product manual for a complete list of parameters and their functions.

Note: Incorrect parameter settings can affect the performance and safety of your refrigeration system. Proceed with caution when adjusting advanced settings.

7. SPECIFICATIONS

Parameter	Value
Power Supply	110VAC±10%, 50Hz/60Hz
Temperature Measuring Range	-50°C to 50°C
Temperature Controlling Range	-50°C to 50°C
Accuracy	±1°C
Resolution	0.1°C
Relay Output Contact Capacity	3A/110VAC
Operating Temperature	0°C to 60°C
Relative Humidity	20%-85% (No condensation)
Sensor Type	NTC (10KΩ/25°C, B value = 3435K)
Sensor Probe Length	2 meters (7.87 inches)
Front Panel Size	10.2 cm (L) x 5.1 cm (W)
Product Dimensions	10.2 cm (L) x 5.1 cm (W) x 8.3 cm (D)
Installing Hole Size	9.2 cm (L) x 4.4 cm (W)
Model Number	MTC-5060
Manufacturer	Elitech

8. MAINTENANCE

To ensure the longevity and optimal performance of your Elitech MTC-5060 controller, follow these maintenance guidelines:

- **Cleaning:** Regularly wipe the front panel with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Inspection:** Periodically check all wiring connections for tightness and signs of wear or damage.
- **Sensor Check:** Ensure the temperature sensor is clean and properly positioned for accurate readings.
- **Environment:** Maintain the operating environment within the specified temperature and humidity ranges to prevent condensation and ensure reliable operation.

9. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your MTC-5060 controller.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Controller does not power on.	No power supply or incorrect wiring.	Check power connections (terminals 1 & 2) and ensure 110VAC supply. Verify wiring against diagram.
Temperature display is inaccurate or shows "EE".	Sensor error or faulty sensor.	Check sensor connections. Ensure the sensor is not damaged. Replace sensor if necessary. Perform temperature calibration if readings are consistently off.
Cooling/Defrosting not activating.	Incorrect set temperature, parameter settings, or faulty output relay.	Verify set temperature and differential. Check relevant parameters (e.g., compressor delay, defrost cycle). Inspect wiring to the cooling/defrosting load.
High/Low temperature alarm triggers frequently.	Alarm limits set too close to operating temperature or actual temperature fluctuation.	Adjust high/low temperature alarm limits. Investigate the cause of temperature fluctuations in the controlled environment.

If the problem persists after attempting these solutions, please contact Elitech customer support for further assistance.

10. WARRANTY AND SUPPORT

Elitech Technology, Inc. warrants this product to be free from defects in materials and workmanship for a period specified by your regional distributor from the date of purchase. This warranty does not cover damage caused by improper installation, misuse, unauthorized modification, or natural disasters.
For technical support, warranty claims, or service inquiries, please contact your local Elitech distributor or visit the official Elitech website for contact information.
Manufacturer: Elitech
Model: MTC-5060