

45-2220

Generic 45-2220 UP-T mP-T Microprocessor Controller Instruction Manual

For Thermo King Units

1. INTRODUCTION

This instruction manual provides essential information for the proper installation, operation, maintenance, and troubleshooting of the Generic 45-2220 UP-T mP-T Microprocessor Controller. This controller is designed for use with various Thermo King refrigeration units. Please read this manual thoroughly before attempting any installation or operation to ensure safe and efficient use of the product.

2. PRODUCT OVERVIEW

The 45-2220 UP-T mP-T Microprocessor Controller is a digital control unit engineered to manage and monitor the refrigeration cycles of compatible Thermo King units. It provides precise temperature control and system diagnostics, ensuring optimal performance of your refrigeration system.

2.1 Compatible Thermo King Units

- TS-200 / TS200 / TS 200
- TS-300 / TS300 / TS 300
- TS-500 / TS500 / TS 500
- TS-600 / TS600 / TS 600
- KD-II / KDII / KD2 / KD 2
- KH-II / KHII / KH2 / KH 2
- MD-II / MDII / MD2 / MD 2
- MD100 / MD 100
- MD200 / MD 200
- MD300 / MD 300
- TD-II / TDII / TD2 / TD 2
- SR XDS

2.2 Product Identification

The controller can be identified by the part numbers: 45-2220, 452220, 45-1708, 451708, 45-1709, 451709.

Friqo Kit



Figure 1: Front view of the 45-2220 Microprocessor Controller. This image shows the black plastic casing of the controller, which is typically mounted within the refrigeration unit.

Frigo Kit



Figure 2: Rear view of the 45-2220 Microprocessor Controller. This view displays the two multi-pin electrical connectors and the product label with part numbers and serial number.



Figure 3: Close-up of the label and connectors on the rear of the 45-2220 Microprocessor Controller. The label clearly shows "mP-T", "ASSY P/N:", "BASE P/N: 1E44825G01", and "S.P. P/N: 45-2220", along with a barcode and serial number.

3. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury or damage to the equipment:

- **Disconnect Power:** Before performing any installation, maintenance, or troubleshooting, ensure that the power supply to the Thermo King unit is completely disconnected.
- **Qualified Personnel:** Installation and service should only be performed by qualified and authorized personnel familiar with refrigeration systems and electrical components.
- **Proper Tools:** Use appropriate tools for installation and removal to prevent damage to the controller or surrounding components.
- **Environmental Conditions:** Ensure the operating environment is within the specified temperature and humidity ranges to prevent malfunction.
- **Wiring:** Verify all wiring connections are secure and correctly matched according to the Thermo King unit's wiring diagrams. Incorrect wiring can lead to system failure or electrical hazards.

4. SETUP AND INSTALLATION

This section outlines the general steps for installing the 45-2220 Microprocessor Controller. Refer to the specific service manual for your Thermo King unit for detailed wiring diagrams and mounting procedures.

1. **Power Disconnection:** Ensure the Thermo King unit's main power supply is turned off and locked out.
2. **Access Controller Location:** Locate the existing controller or the designated mounting area within the Thermo King unit. This may require removing access panels.
3. **Remove Old Controller (if applicable):** Carefully disconnect all wiring harnesses from the old controller. Note the position and orientation of each connector. Remove mounting screws or clips.
4. **Mount New Controller:** Position the new 45-2220 controller in the designated location. Secure it using the appropriate mounting hardware. Ensure it is firmly seated and not subject to excessive vibration.
5. **Connect Wiring:** Reconnect the wiring harnesses to the new controller. Ensure each connector is fully seated and locked into place. Refer to the unit's wiring diagram to confirm correct connections. The controller features two multi-pin connectors on its rear panel (refer to Figure 2 and 3).
6. **Inspect Connections:** Double-check all connections for security and correctness. Ensure no wires are pinched or exposed.
7. **Restore Access Panels:** Replace any access panels removed during installation.
8. **Power Restoration:** Restore power to the Thermo King unit.
9. **Initial System Check:** Perform an initial system check as per the Thermo King unit's service manual to verify proper controller function and communication.

5. OPERATING INSTRUCTIONS

Once installed, the 45-2220 Microprocessor Controller operates in conjunction with the Thermo King unit's control panel. Specific operational procedures, such as setting temperature, initiating defrost cycles, or viewing diagnostic codes, are typically performed via the unit's primary display interface.

- **Power On:** After installation and power restoration, the controller will power on with the Thermo King unit.
- **Digital Display:** The controller processes information for the unit's digital display, showing current temperature, setpoint, and operational status.
- **Setpoint Adjustment:** Adjust the desired temperature setpoint using the controls on the Thermo King unit's main interface. The controller will then regulate the refrigeration system to maintain this setpoint.
- **Mode Selection:** Select operating modes (e.g., continuous run, start/stop, defrost) through the unit's control panel.
- **Alarm Codes:** The controller monitors various system parameters and will trigger alarm codes on the unit's display if a fault is detected. Refer to the Thermo King unit's manual for a list of alarm codes and their meanings.

For detailed operational procedures, consult the specific user manual provided with your Thermo King refrigeration unit.

6. MAINTENANCE

The 45-2220 Microprocessor Controller is designed for reliability and typically requires minimal maintenance. However, periodic checks are recommended as part of the overall Thermo King unit maintenance schedule.

- **Visual Inspection:** Periodically inspect the controller and its wiring harnesses for any signs of physical damage, corrosion, or loose connections.
- **Cleaning:** Keep the area around the controller clean and free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning the exterior. Do not use harsh chemicals or abrasive materials.
- **Software Updates:** Any software updates or re-flashing of the controller should only be performed by authorized Thermo King service technicians.
- **Connection Integrity:** Ensure all electrical connectors remain securely fastened to prevent intermittent operation or communication issues.

7. TROUBLESHOOTING

This section provides general troubleshooting guidance. For specific diagnostic procedures and alarm code interpretations, refer to the service manual for your Thermo King unit.

Problem	Possible Cause	Solution
Controller not powering on / No display	No power to the unit; Loose wiring connection; Faulty controller.	Check main power supply to the Thermo King unit. Verify all wiring connections to the controller are secure. If power is present and connections are good, the controller may be faulty and require replacement.
Incorrect temperature readings	Faulty temperature sensor; Wiring issue to sensor; Controller malfunction.	Inspect temperature sensor and its wiring for damage or loose connections. Test sensor resistance if possible. If sensor and wiring are good, the controller may be at fault.
Unit not maintaining setpoint	Refrigeration system issue (e.g., low refrigerant, compressor fault); Controller not sending correct signals.	Check the overall refrigeration system for common faults. Verify controller settings. If the system components are functional, the controller may require diagnostic testing by a qualified technician.
Alarm codes displayed	System fault detected by controller.	Refer to the Thermo King unit's service manual for specific alarm code definitions and troubleshooting steps. Address the underlying system fault.

If troubleshooting steps do not resolve the issue, contact a qualified refrigeration technician or the manufacturer's support.

8. SPECIFICATIONS

Feature	Detail
Model Number	45-2220
Part Numbers	45-2220, 452220, 45-1708, 451708, 45-1709, 451709

Feature	Detail
Brand	Generic
Material	Plastic
Color	Black
Display Type	Digital (via connected unit's display)
Manufacturer	UNBRANDED
Compatibility	Thermo King TS-200, TS-300, TS-500, TS-600, KD-II, KH-II, MD-II, MD100, MD200, MD300, TD-II, SR XDS units

9. WARRANTY AND SUPPORT

Specific warranty information for this Generic product is not provided in the product details. For warranty claims or technical support, please contact your point of purchase or the original equipment manufacturer (Thermo King) for guidance related to their units. Ensure you have your product model number (45-2220) and any relevant purchase documentation available when seeking support.

