Emerson 21D83M-843

Emerson White-Rodgers 21D83M-843 Integrated Furnace Control Board User Manual

For Lennox 83M00 Systems

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Emerson White-Rodgers 21D83M-843 Integrated Furnace Control Board. This control board is designed as a replacement component for Lennox 83M00 furnace systems, offering reliable control over various furnace functions. Please read this manual thoroughly before attempting any installation or operation to ensure safe and correct usage.

2. Safety Information

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life. Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

- Always disconnect electrical power to the furnace before installing or servicing the control board.
- Ensure all wiring connections comply with local and national electrical codes.
- Wear appropriate personal protective equipment (PPE) during installation and service.
- Do not bypass any safety devices.
- Verify proper grounding of the furnace system.

3. Package Contents

Your package should contain the following items:

- White-Rodgers 21D83M-843 Integrated Furnace Control Board
- Wiring Harness (as pictured)
- Installation Instructions (this manual)

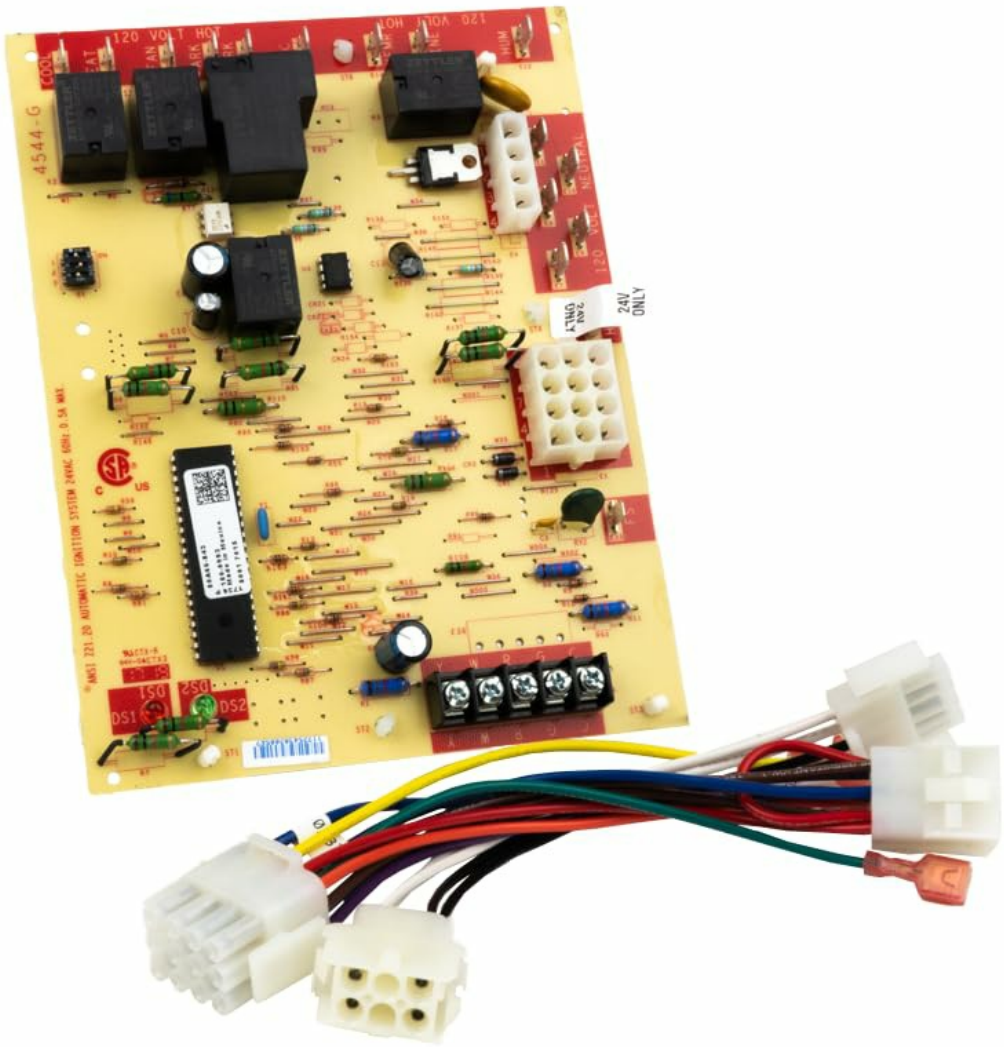


Figure 1: The White-Rodgers 21D83M-843 Integrated Furnace Control Board, shown with its associated wiring harness. The board features various relays, capacitors, resistors, and connection terminals. The wiring harness includes multiple colored wires terminated with connectors for integration into the furnace system.

4. Setup and Installation

Installation of this control board requires electrical knowledge and should ideally be performed by a qualified HVAC technician. If you are performing a DIY installation, proceed with extreme caution.

4.1 Pre-Installation Steps

1. **Disconnect Power:** Turn off all electrical power to the furnace at the main service panel. Verify power is off using a voltage tester.
2. **Document Existing Wiring:** Before disconnecting any wires, take multiple clear photographs of the existing control board and its wiring connections from various angles. This will serve as a crucial reference during reassembly.
3. **Remove Old Board:** Carefully disconnect all wires from the old control board. Note that the new 21D83M-843 board may be physically larger than your original board, potentially requiring minor adjustments to mounting or

component relocation (e.g., 24V transformer).

4.2 Board Installation

4. **Mount New Board:** Mount the new 21D83M-843 control board in the designated location. Ensure it is oriented upright as specified in the original furnace documentation or the provided instructions with the board.
5. **Connect Wiring:** Refer to your documented photographs and the wiring diagram provided with the new control board. Connect all wires to their corresponding terminals. Pay close attention to connections for:
    - **Power Connections:** Ensure 120V HOT and NEUTRAL connections are correct.
    - **Fan Speed Connections:** The board supports three fan speeds. Connect according to your furnace's requirements.
    - **Remote Flame Sense:** Connect the remote flame sensor as indicated.
    - **Optional Connections:** If applicable, connect humidifier and electronic air cleaner wiring.
6. **External Fuse:** Note that this board typically uses an external 3A fuse, unlike some older Lennox boards that had integrated fuses. Ensure the external fuse is correctly installed between the transformer and the board.
7. **LED Status Lights:** Be aware that the location of the diagnostic LED status lights on the new board may differ from your old board. If your furnace door has a viewing hole, it might not align with the new LEDs.
8. **Verify Connections:** Double-check all wiring connections for security and correctness before proceeding.

4.3 Post-Installation

9. **Restore Power:** Once all connections are secure and verified, restore electrical power to the furnace.
10. **Test Operation:** Initiate a heating cycle to confirm proper furnace operation. Observe the diagnostic LED for any error codes.

5. Operating Instructions

The White-Rodgers 21D83M-843 control board manages the sequence of operations for your furnace. Once installed and powered, it will automatically control ignition, fan operation, and safety functions based on thermostat calls.

5.1 Diagnostic Indicator Flash Codes

The control board includes diagnostic indicator flash codes to assist in troubleshooting. These codes are typically displayed via an LED on the board. Refer to the specific diagnostic code chart provided with your control board or furnace documentation for interpretation of these flashes. Common codes indicate issues such as flame failure, pressure switch errors, or limit switch trips.

5.2 Fan Speed Control

The board supports three fan speeds, which are typically configured during installation to match the furnace's requirements for heating, cooling, and continuous fan operation. These settings are not user-adjustable during normal operation and are determined by the wiring connections.

6. Maintenance

The 21D83M-843 control board itself requires no routine maintenance. However, regular maintenance of the overall furnace system is crucial for its longevity and efficient operation. This includes:

- Annual professional furnace inspection and tune-up.
- Regular replacement of air filters.
- Keeping the area around the furnace clear of obstructions.

- Checking and cleaning the flame sensor and igniter as needed.

Always disconnect power to the furnace before performing any maintenance.

7. Troubleshooting

If your furnace is not operating correctly after installing the new control board, refer to the diagnostic flash codes displayed on the board's LED. The following table provides general troubleshooting steps. For detailed code interpretations, consult your furnace's service manual or the specific diagnostic chart for the 21D83M-843 board.

Symptom	Possible Cause	Action
No power to furnace	Blown fuse (external 3A), tripped circuit breaker, loose wiring connection	Check external 3A fuse, reset circuit breaker, verify all power connections.
Furnace not igniting	Faulty igniter, dirty flame sensor, gas supply issue, pressure switch error	Check diagnostic flash codes. Inspect igniter and flame sensor. Ensure gas valve is open.
Blower fan not operating	Incorrect fan speed wiring, faulty blower motor, limit switch trip	Check fan speed wiring connections. Consult diagnostic codes.
Continuous fan operation	Thermostat setting, stuck relay on board	Check thermostat fan setting. If issue persists, professional diagnosis may be required.

If troubleshooting steps do not resolve the issue, contact a qualified HVAC technician for assistance.

8. Specifications

- **Model Number:** 21D83M-843
- **Manufacturer:** White-Rodgers (Emerson)
- **Compatibility:** Lennox 83M00 series furnaces
- **Input Voltage:** 24 VAC, 60 Hz, 0.5A Max (for automatic ignition system)
- **Fan Speeds:** 3
- **Features:** Diagnostic indicator flash codes, remote flame sense, humidifier and electronic air cleaner connections (optional)
- **Product Dimensions:** 11.5 x 7.7 x 2.5 inches
- **Weight:** 0.16 ounces

9. Warranty and Support

For warranty information regarding your White-Rodgers 21D83M-843 control board, please refer to the documentation provided at the time of purchase or contact Emerson/White-Rodgers customer support directly. Keep your proof of purchase for any warranty claims.
For technical support or further assistance, please visit the official Emerson or White-Rodgers website, or contact their customer service department.

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

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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