Ranco ETC-141000-000

Ranco ETC-141000-000 Digital Temperature Electronic Controller User Manual

Model: ETC-141000-000

Brand: Ranco

1. INTRODUCTION

The Ranco ETC Series Electronic Temperature Control, model ETC-141000-000, is designed as a full-featured electronic replacement for electro-mechanical temperature controls commonly used in commercial refrigeration applications. This controller offers significant application flexibility due to its wide temperature range, single and two-stage capability, selectable heating/cooling modes, and multi-voltage input (120/208/240V AC).

2. IMPORTANT SAFETY INFORMATION

- Always disconnect power to the unit before installation, servicing, or maintenance to prevent electrical shock.

- Installation should be performed by a qualified technician in accordance with all local and national electrical codes.

- Ensure the power supply voltage matches the controller's specifications (120/208/240V AC).

- Do not operate the controller with damaged wiring or if the enclosure is compromised.

- The sensor is rated IP67 for dust and water protection; however, ensure proper sealing and protection for all electrical connections.

3. PRODUCT OVERVIEW AND FEATURES

The Ranco ETC-141000-000 controller provides precise temperature management with a user-friendly interface and robust design. Key features include:

- **Wide Temperature Range:** Operates from -30°F to 220°F (-34.4°C to 104.4°C).

- **Adjustable Differential:** Allows setting a differential from 1°F to 30°F (-17°C to -1°C).

- **LCD Read-out:** Displays sensor temperature, control settings, and relay status with a white backlight.

- **High Amp Output Relay:** Single stage with 16 Amps @ 120V AC and 8 Amps @ 208/240V AC.

- **EEPROM Memory:** Retains all control settings during power outages.

- **Keypad Lockout:** Prevents unauthorized alteration of settings.

- **Sensor Lead:** Includes an 8-foot lead, extendable up to 400 feet using 18 or 22-gauge thermostat wire.

- **Easy 4-Step Set-up:** Simplifies initial configuration.

- **Heavy-Duty Relay:** 1 HP rated for demanding applications.

- **Selectable Modes:** Choose between Fahrenheit or Celsius, and heating or cooling modes.

- **Enclosure:** Available in NEMA 1 case and NEMA 4X models for outdoor use.

Image showing the Ranco ETC-141000-000 Digital Temperature Electronic Controller, its retail packaging, and the included instruction sheet. The packaging displays the UPC 00686608004413 and model number ETC-141000.
The UPC for this product is 00686608004413.

4. SETUP AND INSTALLATION

4.1. Mounting

Mount the controller in a location that is easily accessible for viewing and adjustments, away from direct heat sources or excessive vibration. Ensure the chosen location is appropriate for the controller's enclosure type (NEMA 1 for indoor use, NEMA 4X for outdoor or wash-down environments). Use appropriate fasteners to secure the unit firmly.

4.2. Wiring

All wiring must comply with local and national electrical codes. It is recommended that a qualified electrician perform the installation.

1. **Disconnect Power:** Ensure all power to the circuit is disconnected before beginning any wiring.

2. **Power Input:** Connect the appropriate line voltage (120V, 208V, or 240V AC) to the designated power input terminals on the controller.

3. **Load Output:** Connect the controlled device (e.g., compressor, heater) to the output relay terminals. Observe the maximum current ratings (16 Amps @ 120V AC, 8 Amps @ 208/240V AC).

4. **Sensor Connection:** Connect the temperature sensor lead to the sensor input terminals. The 8-foot sensor lead can be extended up to 400 feet using 18 or 22-gauge thermostat wire. Ensure all connections are secure and properly insulated.

5. **Grounding:** Properly ground the controller according to electrical codes.

Close-up view of the Ranco ETC-141000-000 Digital Temperature Electronic Controller, highlighting the digital display, control buttons (SET, Up, Down), and the NEMA 4X outdoor enclosure rating. The temperature sensor is also visible.

5. OPERATING INSTRUCTIONS

The ETC-141000-000 features an intuitive interface for setting and monitoring temperature.

5.1. Initial Power-Up and Basic Settings

Upon initial power-up, the controller will perform a self-test. Follow the easy 4-step set-up process outlined in the quick start guide (typically included with the product) to configure basic parameters.

5.2. Setting Temperature (Setpoint)

1. Press the **SET** button once. The current setpoint will flash on the display.

2. Use the **UP** or **DOWN** arrow buttons to adjust the setpoint to the desired temperature.

3. Press the **SET** button again to confirm and save the new setpoint, or wait a few seconds for it to automatically save and return to normal operation.

5.3. Selecting Heating/Cooling Mode

The controller can operate in either heating or cooling mode. Refer to the detailed programming instructions in the full manual for specific steps to switch between these modes. This setting determines whether the output relay activates when the temperature rises above or falls below the setpoint.

5.4. Differential Adjustment

The differential (also known as hysteresis) prevents rapid cycling of the controlled device. To adjust the differential (range 1°F to 30°F):

1. Access the advanced programming menu (refer to the full manual for specific button combinations).

2. Navigate to the differential setting parameter.

3. Use the **UP** or **DOWN** arrow buttons to set the desired differential value.

4. Save the setting and exit the programming menu.

5.5. Keypad Lockout

To prevent unauthorized changes to settings, the keypad can be locked. Consult the full instruction manual for the specific procedure to enable and disable the keypad lockout feature.

6. MAINTENANCE

The Ranco ETC-141000-000 is designed for reliable operation with minimal maintenance.

- **Cleaning:** Periodically wipe the controller's exterior with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Sensor Inspection:** Regularly inspect the temperature sensor and its lead for any signs of damage or corrosion. Ensure the sensor is properly positioned for accurate temperature readings. The sensor is IP67 rated, but physical damage can compromise its integrity.
- **Connection Checks:** Annually, or as needed, verify that all electrical connections are tight and free from corrosion.

7. TROUBLESHOOTING

If you encounter issues with your Ranco ETC-141000-000 controller, refer to the following common troubleshooting steps:

- **No Power/Display Off:** Check the power supply to the controller. Ensure circuit breakers are not tripped and wiring connections are secure.
- **Incorrect Temperature Reading:** Verify the sensor is properly connected and positioned. Check for any physical damage to the sensor or its lead.
- **Output Not Activating:** Confirm the setpoint and differential settings are correct for the desired operation (heating/cooling). Check the relay status on the LCD. Ensure the load device is functioning correctly.
- **Keypad Unresponsive:** Check if the keypad lockout feature is enabled. Refer to the operating instructions to disable it if necessary.
- **Erratic Behavior:** Disconnect power for a few minutes and then reapply to reset the unit. If issues persist, contact Ranco technical support.

8. TECHNICAL SPECIFICATIONS

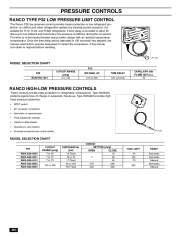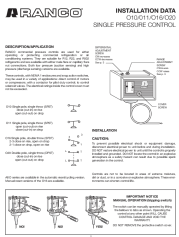| Specification	Detail
Manufacturer	Ranco
Model	ETC-141000-000
Voltage Input	120/208/240V AC
Temperature Range	-30°F to 220°F (-34.4°C to 104.4°C)
Differential Adjustment	1°F to 30°F (-17°C to -1°C)
Output Relay (120V AC)	16 Amps FLA
Output Relay (208/240V AC)	8 Amps FLA
Relay Rating	1 HP
Memory	EEPROM (retains settings during power outages)

Sensor Lead Length	8 feet (extendable up to 400 feet)
Enclosure Type	NEMA 1 (standard), NEMA 4X (available)
Display Type	Digital LCD with white backlight
UPC	686608004413

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your Ranco ETC-141000-000 Digital Temperature Electronic Controller, please contact Ranco customer service or visit their official website. Keep your purchase receipt and model number handy when contacting support.

Related Documents - ETC-141000-000

[Ranco ETC Single Stage Electronic Temperature Control Installation Instructions](#)
Comprehensive installation, operation, and troubleshooting guide for the Ranco ETC Single Stage Electronic Temperature Control. Covers product details, applications, features, specifications, ordering, programming, lockout switch, wiring diagrams, and sensor information for HVAC and refrigeration systems.

[Ranco ETC Two Stage Electronic Temperature Control - NEMA Type 4X Installation Data](#)
Installation data, specifications, operation, and troubleshooting for the Ranco ETC Two Stage Electronic Temperature Control, NEMA Type 4X. This control is designed for commercial HVAC and refrigeration, offering dual-stage temperature control, LCD display, keypad programming, and a NEMA 4X watertight enclosure for outdoor use.

[Ranco, Johnson Controls, and Danfoss Refrigeration Controls Catalog](#)
Comprehensive catalog of Ranco, Johnson Controls, and Danfoss temperature and pressure controls, including low pressure limit controls, high-low pressure controls, electronic controls, defrost controls, and accessories for refrigeration systems.

[Ranco Single Pressure Control Installation Data](#)
Installation data for Ranco single pressure controls (010, 011, 016, 020). Covers description, application, installation, wiring, and control settings for various refrigerants and pressure ranges.