Ranco ETC-141000-000

Ranco 1-Stage Refrigeration Electronic Temperature Control

Model: ETC-141000-000

Introduction

The Ranco® ETC Series Electronic Temperature Control is designed as a versatile electronic replacement for traditional electro-mechanical temperature controls commonly found in commercial refrigeration systems. This unit offers a broad temperature range, single-stage operation, and flexible heating/cooling modes, making it suitable for various applications. It supports multi-voltage input and features an LCD display for easy monitoring of temperature, settings, and relay status.

Key Features

- **1-Stage Temperature Control:** Replaces electro-mechanical controls, handling 0 to 95 percent relative humidity and non-condensing ambient humidity conditions.
- **Wide Temperature Range:** Operates from -30°F to 220°F (-34.4°C to 104.4°C).
- **Selectable Modes:** Offers selectable heating/cooling modes for application versatility.
- **Multi-Voltage Input:** Available in 120/208/240V AC and 24V AC models.
- **LCD Read-out:** Displays sensor temperature, control settings, and relay status.
- **High Amp Output Relay:** Single stage, FLA 16 Amps @ 120V AC and 8 Amps @ 208/240V AC.
- **EEPROM Memory:** Retains control settings during power outages.
- **Keypad Lockout:** Prevents unauthorized alteration of settings.
- **Extendable Sensor Lead:** 8-foot lead, extendable up to 400 feet using 18 or 22-gauge thermostat wire.
- **Durable Sensor:** Sensor rated IP67 for dust and water (1m) resistance.
- **NEMA 1 Case and Cover:** Provides protection for the control unit. NEMA 4X models are also available.
- **Backlit Display:** White backlight on the LCD display for improved visibility.

Setup and Installation

Proper installation is crucial for the optimal performance and longevity of your Ranco ETC-141000-000. Please follow these guidelines carefully.

Mounting the Control Unit

The control unit is designed for wall mounting. Select a location that is easily accessible, protected from direct moisture (unless using a NEMA 4X model), and away from excessive vibration or heat sources. Ensure adequate ventilation around the unit.

Image: The Ranco ETC-141000-000 control unit, showing its NEMA 4X outdoor enclosure and the attached sensor cable. The unit features an LCD display and control buttons (SET, up arrow, down arrow).

Sensor Placement

The temperature sensor is critical for accurate readings. Place the sensor in the area where temperature control is required, ensuring it is not directly exposed to air currents from fans or heating/cooling elements that could cause inaccurate readings. The sensor has an 8-foot lead and can be extended up to 400 feet using 18 or 22-gauge thermostat wire. Ensure all connections are secure and properly insulated.

Image: The Ranco ETC-141000-000 control unit, with a clear view of the sensor tip at the end of its cable. The sensor is rated IP67 for dust and water resistance.

Electrical Connections

Before making any electrical connections, ensure the power supply is disconnected. The unit supports 120V, 208V, and 240V AC. Refer to the wiring diagram provided with your unit for specific connection details. All wiring should comply with local electrical codes and standards. Improper wiring can lead to malfunction or damage.

Operating Instructions

The Ranco ETC-141000-000 is designed for user-friendly operation with a simple 4-step setup process.

Basic Operation

- **Power On:** Once properly wired, apply power to the unit. The LCD display will illuminate, showing the current sensor temperature.
- **Temperature Display:** The LCD continuously displays the current temperature measured by the sensor. You can switch between °F and °C modes as desired.
- **Setting Temperature:** Use the "SET" button to enter the programming mode. Use the up and down arrow buttons to adjust the desired setpoint temperature. Press "SET" again to confirm.
- **Differential Adjustment:** The unit allows for a wide differential adjustment (1°F to 30°F or -17°C to -1°C). This setting determines the temperature range around the setpoint before the relay activates or deactivates.
- **Heating/Cooling Mode:** Select the appropriate mode (heating or cooling) based on your application. This setting dictates whether the relay activates when the temperature is below or above the setpoint.

- **Anti-Short Cycle Delay:** For cooling applications, an anti-short cycle compressor delay is built-in to protect the compressor from rapid cycling.
- **Keypad Lockout:** To prevent accidental or unauthorized changes to settings, the keypad can be locked. Refer to the detailed manual (not provided here, but typically included with the product) for instructions on activating and deactivating the keypad lockout feature.

Maintenance

The Ranco ETC-141000-000 is designed for reliable operation with minimal maintenance. However, periodic checks can help ensure its continued performance.

- **Cleaning:** Periodically wipe the control unit and display with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Sensor Inspection:** Ensure the sensor and its cable are free from damage, kinks, or excessive dirt buildup. The sensor is rated IP67, meaning it is protected against dust and temporary immersion in water (up to 1 meter for 30 minutes).
- **Connection Checks:** Annually, or as needed, inspect all electrical connections to ensure they are secure and free from corrosion.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent premature wear.

Troubleshooting

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

Problem	Possible Cause	Solution
Display is blank or unit is unresponsive.	No power, incorrect wiring, or internal fault.	Check power supply. Verify electrical connections according to the wiring diagram. If power is present and wiring is correct, contact technical support.
Incorrect temperature reading.	Sensor improperly placed, damaged sensor, or loose sensor connection.	Ensure sensor is correctly positioned in the desired temperature zone. Inspect sensor cable for damage. Check sensor connections at the unit.
Unit not controlling temperature as expected.	Incorrect setpoint, differential, or heating/cooling mode settings.	Verify setpoint, differential, and heating/cooling mode settings are appropriate for your application. Ensure keypad lockout is not active if you are trying to change settings.
Settings lost after power outage.	This should not occur.	The EEPROM memory retains control settings during power outages. If settings are lost, contact technical support as this indicates an unusual fault.

For issues not covered here, or if problems persist, please contact Ranco technical support.

Specifications

Brand	Ranco

Model Number	ETC-141000-000
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)
Voltage	120V AC, 208V AC, 240V AC, 24V AC (model dependent)
Output Relay	FLA 16 Amps @ 120V AC, 8 Amps @ 208/240V AC (single stage)
Sensor Lead Length	8 feet (extendable up to 400 feet)
Sensor Rating	IP67 (dust and water resistant)
Enclosure Rating	NEMA 1 (standard), NEMA 4X (available models)
Display Type	Digital LCD with white backlight
Dimensions	2.75 x 2.5 x 6.5 inches
Item Weight	1.2 pounds

Warranty and Support

For detailed warranty information, please refer to the documentation included with your product or visit the official Ranco website. Ranco products are manufactured by Robertshaw.
For technical assistance, troubleshooting beyond this manual, or to inquire about replacement parts, please contact Robertshaw customer support. You can often find contact information and additional resources on the official Robertshaw website: Visit the Robertshaw Store on Amazon.