

Thincol STC-3000

Thincol STC-3000 Digital Temperature Controller User Manual

Model: STC-3000

1. INTRODUCTION

The Thincol STC-3000 is a versatile digital temperature controller designed for precise temperature management in various applications such as farms, greenhouses, and refrigeration systems. This device features a touch switch mode and offers high accuracy for maintaining stable temperature conditions, which is crucial for the health and safety of plants or animals.

This manual provides detailed instructions for the installation, operation, and maintenance of your STC-3000 temperature controller. Please read it thoroughly before use to ensure proper functionality and safety.

2. KEY FEATURES

- **Wide Temperature Control Range:** Measures and controls temperature from -55°C to 120°C (-67°F to 248°F).
- **High Accuracy:** 0.1°C temperature control accuracy.
- **Touch Switch Mode:** User-friendly interface for setting parameters.
- **Dual Functionality:** Capable of both heating and cooling control.
- **Versatile Application:** Suitable for farms, greenhouses, refrigeration houses, and other temperature-sensitive environments.

3. SAFETY INFORMATION

Please observe the following safety precautions to prevent injury or damage to the device:

- Ensure the power supply voltage matches the controller's specifications (110-220V AC).
- All wiring should be performed by a qualified electrician to prevent electrical shock.
- Do not expose the device to water or excessive humidity.

- Do not disassemble or modify the controller.
- Keep out of reach of children.
- Disconnect power before performing any wiring or maintenance.

4. INSTALLATION AND WIRING

The STC-3000 is designed for panel mounting. Ensure adequate space for ventilation and access to wiring terminals.

4.1 Wiring Diagram

Refer to the diagram below for correct wiring connections. Incorrect wiring can damage the device or connected equipment.

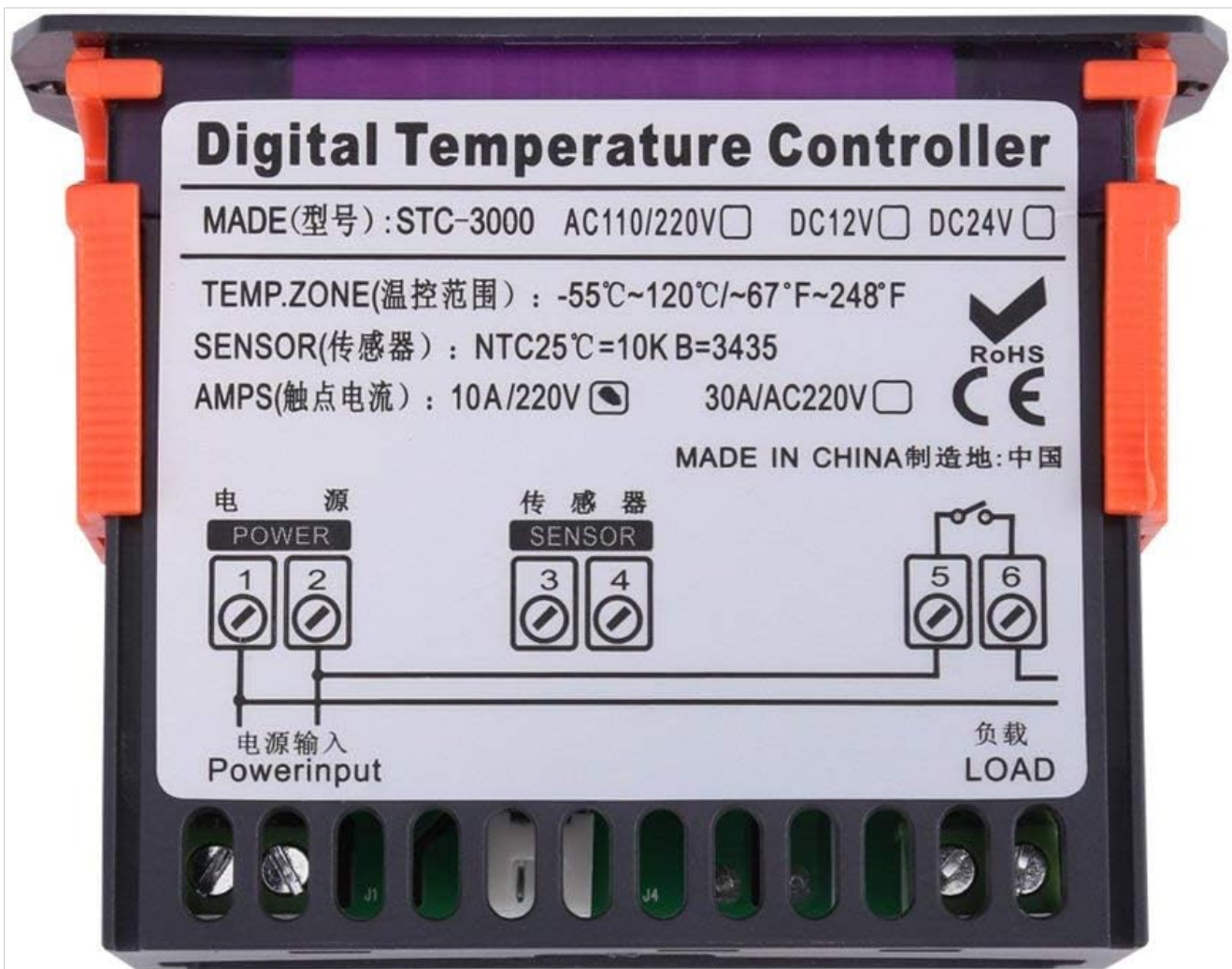


Figure 1: Wiring diagram for the STC-3000 temperature controller. Terminals 1 and 2 are for power input (110-220V AC). Terminals 3 and 4 are for the NTC temperature sensor. Terminals 5 and 6 are for the load (heating or cooling device).

Wiring Connections:

- **Power Input (1, 2):** Connect your 110-220V AC power supply to these terminals.
- **Sensor (3, 4):** Connect the NTC temperature sensor to these terminals. The sensor is non-polar, so connection order does not matter.
- **Load (5, 6):** Connect your heating or cooling device (e.g., heater, fan, compressor) to these terminals. Ensure the load's power requirements do not exceed the controller's maximum current rating (10A or 30A, depending on model).

4.2 Mounting

The controller is designed for flush panel mounting. Cut an opening of approximately 71mm x 29mm (2.8in x 1.14in) in your panel. Insert the controller and secure it using the integrated clips on the sides.



Figure 2: Side view of the STC-3000, showing the orange mounting clips used to secure the controller into a panel cutout.

5. OPERATING INSTRUCTIONS

The STC-3000 features a digital display and touch buttons for easy parameter setting.

5.1 Front Panel Overview



Figure 3: Front panel of the STC-3000 showing the digital display and touch buttons: SET, RST, Up arrow, Down arrow, and OK/°C/°F.

- **SET Button:** Enters parameter setting mode.
- **RST Button:** Resets the controller or exits setting mode without saving.
- **Up Arrow (▲):** Increases values or navigates menu.
- **Down Arrow (▼):** Decreases values or navigates menu.
- **OK / °C/°F Button:** Confirms settings or switches between Celsius and Fahrenheit display.

5.2 Setting Temperature Parameters

1. Set Start Temperature (P1):

- Press and hold the **SET** button for 3 seconds to enter the parameter setting menu.
- Use the **Up** or **Down** arrows to navigate to P1.
- Press **SET** again to enter P1 setting.
- Use **Up** or **Down** to adjust the desired start temperature.
- Press **OK** to confirm and save.

2. Set Stop Temperature (P2):

- Follow the same steps as P1, but navigate to P2.
- Adjust the desired stop temperature.
- Press **OK** to confirm and save.

3. Temperature Correction (P3):

- Allows for calibration of the temperature sensor. Adjust if the displayed temperature differs from a known accurate thermometer.

4. Delay Start (P4):

- Sets a delay time (in minutes) before the output activates after reaching the set temperature. Useful for protecting compressors in refrigeration systems.

The controller will automatically save settings and return to the main display after a few seconds of inactivity or by pressing the **RST** button.

5.3 Switching Temperature Units (°C/°F)

To switch between Celsius (°C) and Fahrenheit (°F), press and hold the **OK / °C/°F** button for 3 seconds.

6. MAINTENANCE

To ensure the longevity and accurate operation of your STC-3000 controller, follow these maintenance guidelines:

- **Cleaning:** Wipe the display and casing with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Sensor Care:** Ensure the temperature sensor is clean and free from debris. Avoid bending or damaging the sensor cable.
- **Environmental Conditions:** Operate the controller within its specified temperature and humidity ranges.
- **Wiring Inspection:** Periodically check all wiring connections to ensure they are secure and free from corrosion.

7. TROUBLESHOOTING

If you encounter issues with your STC-3000, refer to the following common problems and solutions:

| Problem | Possible Cause | Solution |
|---|---|--|
| Display is blank | No power supply or incorrect wiring. | Check power connections (terminals 1 & 2). Ensure voltage matches specifications. |
| Inaccurate temperature reading | Faulty sensor, sensor not properly connected, or need for calibration. | Check sensor wiring (terminals 3 & 4). Use P3 parameter for temperature correction. Replace sensor if damaged. |
| Load not switching (heating/cooling) | Incorrect temperature settings (P1, P2), faulty load, or incorrect load wiring. | Verify P1 and P2 settings. Check load wiring (terminals 5 & 6). Test the load device independently. |
| Controller not responding to button presses | Temporary software glitch. | Disconnect power for a few seconds, then reconnect to perform a soft reset. |

8. SPECIFICATIONS

| Parameter | Value |
|----------------------------------|---------------------------------|
| Model | STC-3000 |
| Working Voltage | AC 110-220V |
| Current Rating | 10A or 30A (model dependent) |
| Temperature Control Range | -55°C to 120°C (-67°F to 248°F) |
| Temperature Measurement Accuracy | ±0.1°C |
| Sensor Type | NTC 10K B=3435 |
| Display Type | Digital Touchscreen |

| Parameter | Value |
|--------------------------------|--|
| Product Dimensions (L x W x H) | 85mm x 35mm x 65mm (3.35" x 1.38" x 2.56") |
| Mounting Hole Size | Approx. 71mm x 29mm (2.8" x 1.14") |

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided with your purchase or contact Thincol customer service. Keep your purchase receipt as proof of purchase.