Sanpyl STC-3000

Sanpyl STC-3000 Digital Temperature Controller User Manual

Brand: Sanpyl | **Model:** STC-3000

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the Sanpyl STC-3000 Digital Temperature Controller. This electronic thermostat is designed for precise temperature control with high accuracy, suitable for various applications requiring stable temperature management. It features a touch interface and is available in 110V to 220V 10A and 30A variants.

Figure 1.1: Sanpyl STC-3000 Digital Temperature Controller (Angled View)

This image shows the Sanpyl STC-3000 Digital Temperature Controller from an angled perspective, highlighting its compact design,

digital display, and touch buttons. The orange side clips for mounting are visible.

2. Safety Information

Please read all safety warnings and instructions carefully before installing or operating this device. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Ensure the power supply voltage matches the controller's specifications (110V-220V AC).
- All wiring should be performed by a qualified electrician in accordance with local electrical codes.
- Disconnect power before making any wiring connections or performing maintenance.
- Do not operate the controller in environments with excessive moisture, dust, or corrosive gases.
- Do not exceed the maximum current rating (10A or 30A, depending on model).
- Keep the device away from children.

3. Package Contents

Verify that all items are present and undamaged upon opening the package:

- 1 x Sanpyl STC-3000 Digital Temperature Controller
- 1 x NTC Temperature Sensor Probe

4. Product Features

- High accuracy digital temperature control (0.1°C).
- Wide temperature measurement and control range: -55°C to 120°C (-67°F to 248°F).
- Touch-sensitive buttons for easy operation.
- Clear digital display for temperature readings.
- Supports both heating and cooling control modes.
- Available in 10A and 30A relay output versions.
- Compact design for panel mounting.

Figure 4.1: Front Panel of STC-3000 Controller

This image provides a clear front view of the STC-3000 controller, showing the digital display, "SET" and "RST" buttons on the left, and "Up" and "OK/Down" buttons on the right. The model number "STC-3000" is printed below the display.

5. Setup and Installation

The STC-3000 is designed for panel mounting. Follow these steps for proper installation and wiring:

5.1 Panel Mounting

1. Cut a rectangular opening in your panel with dimensions approximately 71mm x 29mm (2.80in x 1.14in).
2. Insert the controller into the opening.
3. Secure the controller using the orange mounting clips on the sides. Push them inwards until they lock into place against the panel.

5.2 Wiring Diagram

Refer to the diagram below for correct wiring connections. Ensure all connections are secure and insulated.

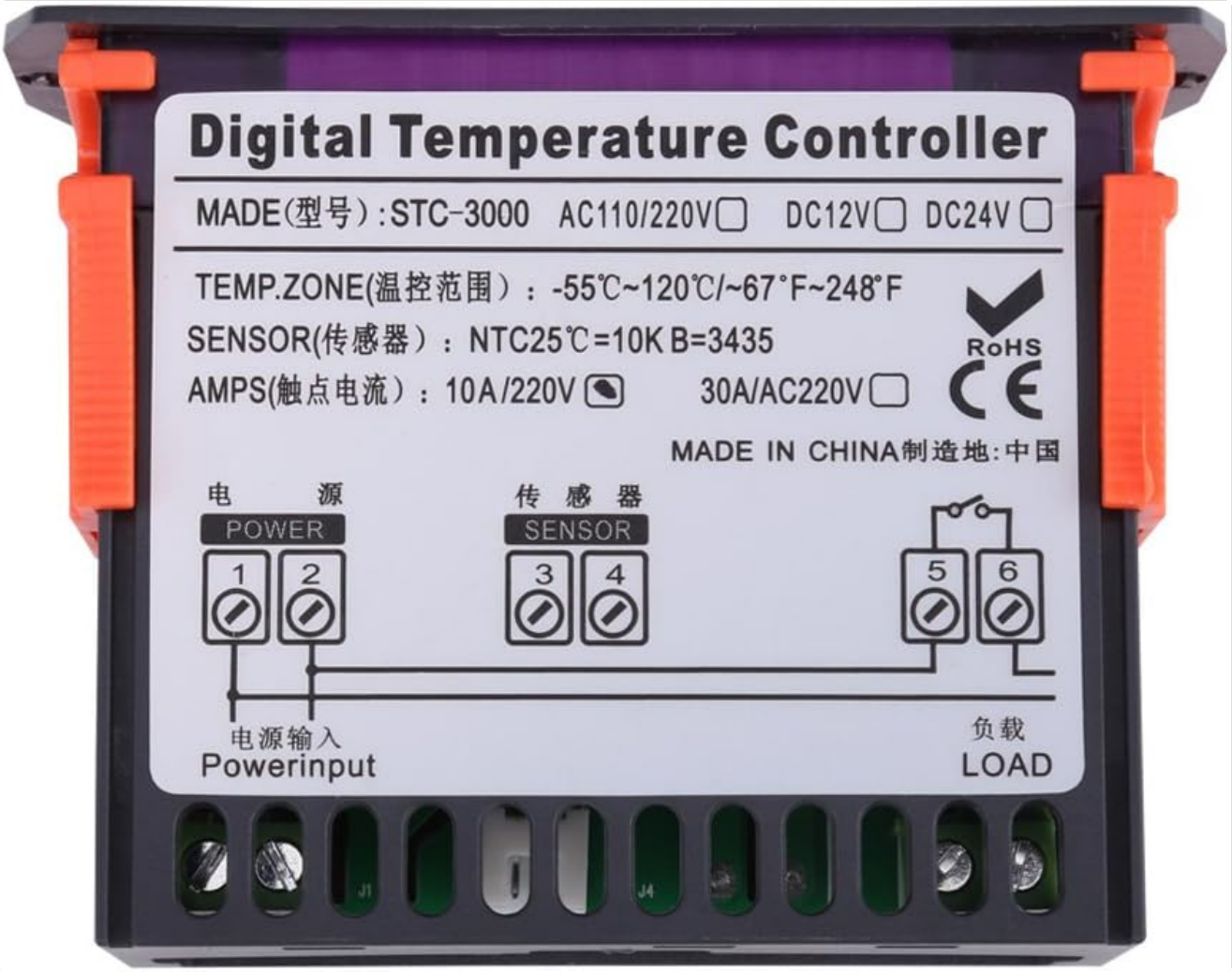

Figure 5.1: STC-3000 Wiring Diagram

This image displays the wiring diagram located on the back of the STC-3000 controller. It clearly labels terminals for "Power Input" (1, 2), "Sensor" (3, 4), and "Load" (5, 6), indicating how to connect the power supply, temperature sensor, and the device to be controlled (e.g., heater or cooler).

- **Power Input (Terminals 1 & 2):** Connect your AC power supply (110V-220V) to these terminals.
- **Sensor (Terminals 3 & 4):** Connect the NTC temperature sensor probe to these terminals. The sensor is non-polar, so connection order does not matter.
- **Load (Terminals 5 & 6):** Connect the device you wish to control (e.g., heater, cooler, fan) to these terminals. This is a relay output, acting as a switch. Ensure the load's power requirements do not exceed the controller's maximum current rating (10A or 30A).

Figure 5.2: Rear View with Sensor Connection

This image shows the rear of the STC-3000 controller with the NTC temperature sensor connected to its designated terminals. The screw terminals for power input and load are also visible, providing a practical view of the connection points.

6. Operating Instructions

The STC-3000 features a user-friendly touch interface. Here's how to operate it:

6.1 Button Functions

- **SET:** Enters/Exits parameter setting mode. Short press to view current set temperature. Long press (3 seconds) to enter parameter setting.
- **RST:** Resets the controller. Long press (3 seconds) to restore factory settings.
- **▲ (Up Arrow):** Increases parameter value or navigates up in menus.
- **▼ (Down Arrow) / OK:** Decreases parameter value or navigates down in menus. Also acts as an "OK" button to confirm settings when in parameter mode.

6.2 Setting Temperature

1. Short press the **SET** button. The display will show the current set temperature.
2. Long press the **SET** button for 3 seconds until the display flashes.
3. Use the ▲ or ▼ buttons to adjust the desired temperature setpoint.
4. Press the **SET** button again or wait 5 seconds for the setting to be saved automatically and return to normal display mode.

6.3 Parameter Settings (Advanced)

Long press **SET** for 3 seconds to enter parameter setting mode. Use ▲ and ▼ to navigate between parameters (P0-P6). Press **SET** to select a parameter, then use ▲ and ▼ to adjust its value. Press **SET** again to confirm and move to the next parameter, or wait to exit.

Parameter	Description	Default Value	Range
P0	Heating/Cooling Mode (H/C)	C (Cooling)	H/C
P1	Hysteresis Setting (Differential)	2.0°C	0.1-30.0°C
P2	Upper Temperature Limit	120°C	-55°C to 120°C
P3	Lower Temperature Limit	-55°C	-55°C to 120°C
P4	Temperature Correction	0.0°C	-10.0°C to 10.0°C
P5	Delay Start Time (Minutes)	0 minutes	0-10 minutes
P6	High Temperature Alarm	OFF	ON/OFF

Note: The specific default values and ranges might vary slightly between production batches. Always refer to the on-screen display for the exact options.

7. Maintenance

To ensure the longevity and accurate performance 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:** Keep the temperature sensor probe clean and free from debris. Avoid bending or damaging the sensor cable.
- **Connections:** Periodically check all wiring connections to ensure they are tight and free from corrosion. Disconnect power before checking connections.
- **Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent damage.

8. Troubleshooting

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

Problem	Possible Cause	Solution
Display is blank or not powering on.	No power supply; incorrect wiring; faulty unit.	Check power connections (Terminals 1 & 2). Ensure voltage matches specifications. Verify wiring against diagram. If problem persists, contact support.
Temperature reading is inaccurate or "LLL" / "HHH" displayed.	Sensor disconnected or damaged; sensor short-circuited; temperature out of range.	Check sensor connections (Terminals 3 & 4). Ensure sensor cable is not damaged. Replace sensor if necessary. Verify ambient temperature is within controller's range.
Load (e.g., heater/cooler) does not turn on/off.	Incorrect temperature setpoint or hysteresis; faulty load wiring; load exceeding current rating; relay failure.	Verify set temperature and P1 (Hysteresis) settings. Check load wiring (Terminals 5 & 6). Ensure load current is within 10A/30A limit. Test the load directly if possible.
Buttons are unresponsive or difficult to use.	Dust/debris on touch surface; static electricity; internal issue.	Clean the touch surface with a soft, dry cloth. Ensure hands are dry. If persistent, try power cycling the device.

If the issue is not resolved by the above steps, please contact Sanpyl customer support.

9. Specifications

Parameter	Value
Model	STC-3000
Working Principle	Electronic thermostat, Digital thermostat
Power Supply	AC 110V-220V
Current Rating (Optional)	10A / 30A (AC220V)
Temperature Range	-55°C to 120°C (-67°F to 248°F)
Accuracy	0.1°C
Sensor Type	NTC 25°C=10K B=3435
Dimensions (L x W x H)	85 x 35 x 65mm (3.34 x 1.38 x 2.56 inches)
Weight	121g - 136g (depending on model)
Manufacturer	Sanpyl
ASIN	B07X1SCN3P
UPC	706092881243

10. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or visit the official Sanpyl store.

Sanpyl Store: https://www.amazon.com/stores/Sanpyl/page/EA2471F4-E5E3-4186-9EEB-1F4A1C18E435