NITRIP STC-3008

STC-3008 Dual Display Digital Temperature Thermostat Controller User Manual

Model: STC-3008 | Brand: NITRIP

1. Introduction

The STC-3008 is a versatile dual-display digital temperature thermostat controller designed for precise temperature regulation. It features two independent NTC probe sensors, allowing for simultaneous monitoring and control of two distinct temperature zones or a single zone with redundant sensing. This controller is suitable for a wide range of applications including industrial processes, agricultural settings, refrigeration systems, greenhouses, and aquariums.

2. Safety Information

Please read and understand all safety instructions before installation and operation. Failure to follow these instructions may result in electric shock, fire, or damage to the device.

- Ensure the power supply voltage matches the controller's specifications (110-220VAC or 12V/24V DC).
- All wiring should be performed by a qualified electrician to prevent electrical hazards.
- Strictly distinguish the interface of relay, sensor, and power connections. Incorrect wiring can damage the unit.
- Maintain proper distance between sensor leads and power wires to avoid interference.
- Do not operate the device in environments with excessive moisture or corrosive gases.
- Disconnect power before performing any maintenance or wiring.

3. Product Overview

The STC-3008 features a compact design with a clear dual digital display for easy temperature monitoring. It includes two NTC temperature probes for accurate sensing.



Figure 3.1: Front view of the STC-3008 controller with connected NTC probes. The unit displays two temperature readings and has control buttons on the right.



Figure 3.2: Close-up of the STC-3008 front panel, highlighting the dual digital displays for temperature 1 and temperature 2, along with the four control buttons (up/down for each display).



Figure 3.3: Detailed view of the wiring diagram located on the back of the STC-3008 controller, showing connections for power supply, sensors, and output relays.

4. Specifications

Feature	Specification
Product Model	STC-3008
Temperature Control Range	-55 °C to +110 °C
Screen Display	Dual Screen Dual Digital Display
Temperature Measurement Accuracy	±1 °C (-50 °C to 70 °C)
Optional Power Supply	DC12V, DC24V, 110-220VAC (50/60Hz)
Machine Size	Approx. 75 x 34.5 x 85mm (3 x 1.4 x 3.3in)
Sensor Type	NTC sensor (1 meter cable length)

Feature	Specification
Installation Opening	Approx. 71 x 29mm (2.8 x 1.1in)
Housing Material	ABS flame retardant plastic shell
Output Capacity	10A
Item Weight	4.2 ounces (0.12 Kilograms)

5. Setup

5.1 Installation

1. Prepare an opening of approximately 71 x 29mm (2.8 x 1.1in) in your control panel or enclosure.
2. Insert the STC-3008 controller into the opening. The red clips on the sides will secure it in place.
3. Ensure the controller is firmly seated and stable.

5.2 Wiring

Refer to the wiring diagram on the back of the unit (Figure 3.3) and the following instructions for proper connection. **Always disconnect power before wiring.**

- **Power Supply (Terminals 1 & 2):** Connect your chosen power supply (110-220VAC, 12VDC, or 24VDC) to terminals 1 and 2. Ensure correct polarity for DC power.
- **Sensor 1 (Terminals 3 & 4):** Connect the first NTC temperature probe to terminals 3 and 4.
- **Sensor 2 (Terminals 5 & 6):** Connect the second NTC temperature probe to terminals 5 and 6.
- **Output 1 (Terminals 7 & 8):** These are the relay output contacts for the first controlled device (e.g., heater or cooler). Connect your load to these terminals. The relay is rated for 10A.
- **Output 2 (Terminals 9 & 10):** These are the relay output contacts for the second controlled device. Connect your load to these terminals. The relay is rated for 10A.

Note: The output relays are dry contacts, meaning they provide a switch closure. You will need to wire your load and its power source through these contacts.

6. Operating Instructions

6.1 Power On

Once wired correctly, apply power to the controller. The dual digital displays will illuminate, showing the current temperatures detected by Sensor 1 and Sensor 2.

6.2 Setting Temperature Parameters

The STC-3008 allows setting independent control parameters for each output. The specific programming steps may vary slightly depending on the exact firmware version, but generally involve pressing and holding the 'Set' button (often indicated by a gear icon or 'S') to enter programming mode, then using the up/down arrows to navigate parameters and adjust values.

- **Setting Temperature 1 (Display 1):** Use the up/down arrows associated with the first display to set the desired temperature for the first output.
- **Setting Temperature 2 (Display 2):** Use the up/down arrows associated with the second display to set the desired temperature for the second output.

- **Hysteresis/Differential:** This parameter (often labeled 'H' or 'd') defines the temperature difference between the turn-on and turn-off points of the relay to prevent rapid cycling. Adjust this value as needed for your application.
- **Heating/Cooling Mode:** Some models allow selection between heating (H) and cooling (C) modes for each output. In heating mode, the relay turns on when the temperature drops below the set point minus hysteresis. In cooling mode, the relay turns on when the temperature rises above the set point plus hysteresis.

Consult the specific programming chart provided with your unit for detailed parameter codes and adjustment procedures.

7. Maintenance

The STC-3008 is designed for low maintenance. Follow these guidelines to ensure optimal performance and longevity:

- **Cleaning:** Wipe the unit with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Sensor Care:** Ensure the NTC probes are clean and free from debris. Avoid bending or damaging the probe cables.
- **Environmental Conditions:** Operate the controller within its specified temperature and humidity ranges. Avoid direct sunlight or extreme temperatures.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.

8. Troubleshooting

Problem	Possible Cause	Solution
Display is blank	No power or incorrect wiring.	Check power supply connection and voltage. Verify wiring to terminals 1 and 2.
"LLL" or "HHH" on display	Sensor error (open circuit or short circuit) or temperature out of range.	Check sensor connection to terminals. Replace faulty sensor if necessary. Ensure temperature is within -55°C to +110°C.
Relay not activating	Incorrect temperature settings, hysteresis, or wiring.	Verify set point and hysteresis values. Check wiring to output terminals (7-10) and the connected load. Ensure heating/cooling mode is correctly set.
Inaccurate temperature reading	Damaged sensor or sensor placed incorrectly.	Inspect sensor for physical damage. Ensure sensor is properly immersed or positioned in the area to be measured. Replace if damaged.

9. Warranty and Support

This product is manufactured by NITRIP. For warranty information or technical support, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.

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