NICREW TC-321

NICREW TC-321 Digital Temperature Controller User Manual

Model: TC-321

1. Introduction

The NICREW TC-321 Digital Temperature Controller is a pre-wired, two-stage thermostat designed for precise temperature management. It features both heating and cooling modes, making it suitable for a wide range of applications such as aquariums, terrariums, incubation, and greenhouses. This device automatically controls temperature based on your preset parameters, ensuring a stable environment for your specific needs.

Image: The NICREW TC-321 Digital Temperature Controller display unit, shown with a lizard in its natural habitat, illustrating its use in maintaining environmental conditions.

2. Safety Instructions

- Read all instructions carefully before use.
- Ensure the power supply voltage matches the controller's requirements (110V).
- Do not immerse the controller unit or power outlets in water. The temperature probe is waterproof.
- Always unplug the unit from the power source before performing any maintenance or adjustments.
- Do not exceed the maximum load capacity of 1100W.
- Keep out of reach of children.

3. Product Overview

The NICREW TC-321 consists of a main control unit with an LCD display, a pre-wired outlet box, and a waterproof temperature probe.

Image: All components of the NICREW TC-321 Digital Temperature Controller, including the main display unit, the pre-wired outlet box with heating and cooling ports, and the temperature probe with suction cup.

Components:

- **Display Unit:** Features an LCD screen showing real-time temperature, set temperature, and mode indicators. Includes 'set' button and up/down arrows for programming.
- **Outlet Box:** Contains two grounded outlets, one for heating devices and one for cooling devices.
- **Temperature Probe:** A waterproof sensor that accurately measures the ambient temperature. It can be used in both wet and dry environments.

Outlet Box

Display Unit

Temperature Probe

4. Specifications

Feature	Specification
Input Voltage	110V AC, 50Hz-60Hz
Product Consumption	<3W
Resistive Load	1100W/110V AC
Filament Lamp Load	220W/110V AC
Inductive Load	275W/110V AC
Temperature Range	-40°F to 200°F
Temperature Adjustment	1°F increments

Image: Detailed dimensions of the NICREW TC-321 Digital Temperature Controller, including the display unit, outlet box, and cable lengths.

5. Setup

1. **Placement:** Position the display unit in a visible location. The outlet box can be mounted or placed securely.
2. **Probe Installation:** Place the temperature probe in the environment where temperature needs to be controlled. The probe is waterproof and can be submerged in water or placed in dry enclosures. Use the included suction cup for secure placement if applicable.
3. **Connect Devices:** Plug your heating device (e.g., aquarium heater, heat mat) into the outlet labeled 'HEAT'. Plug your cooling device (e.g., cooling fan, chiller) into the outlet labeled 'COOL'. Ensure total wattage does not exceed 1100W.
4. **Power On:** Plug the controller's main power cord into a standard 110V AC electrical outlet. The display will illuminate, showing the current temperature.

Image: The NICREW TC-321 Digital Temperature Controller set up with an aquarium, showing the display unit, outlet box, and probe in position.

6. Operating Instructions

The TC-321 allows you to set a target temperature and define temperature differentials for both heating and cooling modes. This ensures your environment stays within a desired range.

Setting Target Temperature and Differentials:

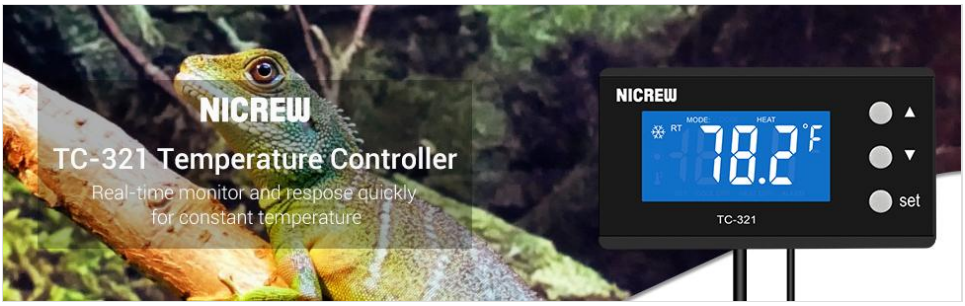


Image: Step-by-step visual guide on how to set the target temperature, cooling differential, and heating differential on the NICREW TC-321 display.

1. **Set Target Temperature:**

- Press and hold the **SET** button for 3 seconds. The display will show the current target temperature setting.
- Use the ▲ (up) or ▼ (down) buttons to adjust the target temperature to your desired value (e.g., 76°F).
- Press **SET** again to confirm and move to the next setting.

2. **Set Cooling Differential (COOL DIFF):**
   - After setting the target temperature, the display will show 'COOL DIFF'.
   - Use the ▲ or ▼ buttons to set the cooling differential (e.g., 4°F). This means the cooling device will activate when the temperature reaches Target Temp + Cool Diff (e.g., 76°F + 4°F = 80°F) and shut off when it returns to the Target Temp (76°F).
   - Press **SET** again to confirm.
3. **Set Heating Differential (HEAT DIFF):**
   - The display will now show 'HEAT DIFF'.
   - Use the ▲ or ▼ buttons to set the heating differential (e.g., 1°F). This means the heating device will activate when the temperature drops to Target Temp - Heat Diff (e.g., 76°F - 1°F = 75°F) and shut off when it returns to the Target Temp (76°F).
   - Press **SET** one last time to save all settings and exit the programming mode.

The controller will now operate automatically to maintain the temperature within your set range.

Temperature Alarm:

The device includes a temperature alarm feature that activates if the temperature deviates significantly from your desired range, providing an alert for potential issues.

7. Applications

The NICREW TC-321 Digital Temperature Controller is versatile and can be used in various environments requiring stable temperature control:

- **Aquariums:** Maintain optimal water temperature for fish and aquatic plants.
- **Reptile Terrariums:** Create precise thermal gradients for reptiles and amphibians.
- **Incubation:** Ensure consistent temperatures for egg incubation.
- **Greenhouses:** Regulate ambient temperature for plant growth.
- **Home Brewing:** Control fermentation temperatures for consistent results.

Image: Various animals including turtles, snakes, lizards, and chameleons, illustrating the controller's use in maintaining stable temperatures for pets.

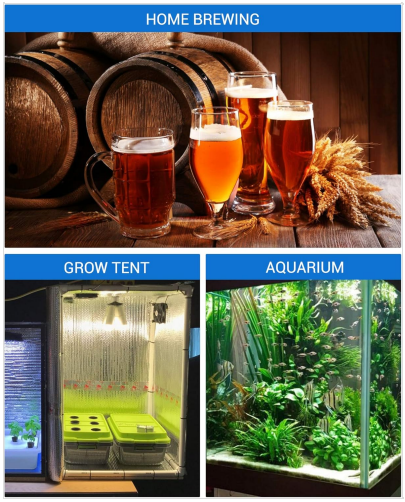


Image: Examples of applications including home brewing, grow tents, and aquariums, demonstrating the versatility of the temperature controller.

8. Maintenance

- **Cleaning:** Wipe the display unit and outlet box with a dry, soft cloth. Do not use abrasive cleaners or immerse in water.
- **Probe Care:** Regularly check the temperature probe for any damage or buildup. Clean gently if necessary.
- **Storage:** If storing the unit for an extended period, unplug it, clean it, and store it in a dry, cool place.

9. Troubleshooting

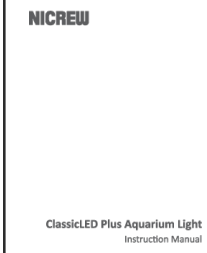
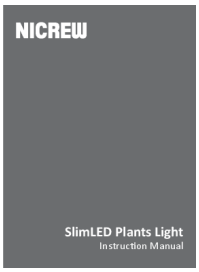
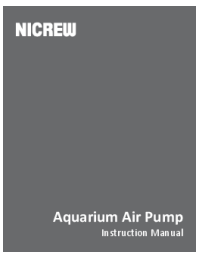
Problem	Possible Cause	Solution
Display is blank	No power; loose connection	Check power outlet, ensure controller is plugged in securely.
Heating/Cooling device not activating	Incorrect settings; device malfunction; temperature within differential	Verify target temperature and differential settings. Check if the connected device is working. Ensure current temperature is outside the set differential range.

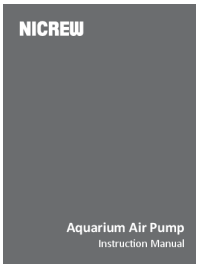
Problem	Possible Cause	Solution
Inaccurate temperature reading	Probe not properly placed; damaged probe	Ensure probe is fully immersed/positioned correctly. Inspect probe for damage.
Temperature alarm sounds	Temperature outside set limits	Check connected heating/cooling devices. Adjust settings if necessary. Investigate environmental factors.

10. Warranty and Support

The NICREW TC-321 Digital Temperature Controller comes with a**12-month warranty** from the date of purchase. This warranty covers manufacturing defects and ensures reliable operation under normal use conditions.
For technical support, troubleshooting assistance, or warranty claims, please contact NICREW customer service. Refer to the product packaging or the official NICREW website for the most current contact information.

Related Documents - TC-321

	NICREW ClassicLED Plus Aquarium Light: Instruction Manual & Setup Guide Comprehensive instruction manual for the NICREW ClassicLED Plus Aquarium Light. Learn how to install, program, and maintain your aquarium lighting for optimal plant and fish health. Includes safety guidelines and troubleshooting.
	NICREW SlimLED Plants Light Instruction Manual Comprehensive instruction manual for the NICREW SlimLED Plants Light, covering safety precautions, installation, controller usage, color temperature and brightness settings, timer functions, troubleshooting, maintenance, disposal, and warranty information.
	NICREW Aquarium Air Pump Instruction Manual Instruction manual for the NICREW Aquarium Air Pump, covering safety, installation, maintenance, and troubleshooting.

	NICREW Marine Aquarium Light Quick Start Guide A quick start guide for the NICREW Marine Aquarium Light, detailing setup, programming, and safety instructions for optimal aquarium lighting.
	NICREW Aquarium Air Pump Instruction Manual Official instruction manual for the NICREW Aquarium Air Pump (model 01933EU2403V3). This guide provides detailed information on safety precautions, installation methods, routine maintenance, proper disposal (EU countries), and warranty details. Learn how to set up and care for your aquarium air pump to ensure optimal performance and longevity.
	NICREW Clip-on LED Light - Aquarium Lighting Guide & Warranty Learn how to use your NICREW Clip-on LED Light for framed and frameless aquariums. Includes controller functions, warranty information, and safety tips.