CEMELI STC-3028

CEMELI STC-3028 DC 24V Dual Digital Temperature and Humidity Controller User Manual

Model: STC-3028 DC 24V

1. Introduction

The CEMELI STC-3028 is a dual digital controller designed to precisely manage both temperature and humidity. This device is suitable for a wide range of applications requiring accurate environmental control, such as incubators, greenhouses, storage facilities, and more. It features an NTC sensor for temperature measurement and a dedicated humidity sensor, providing reliable monitoring and control capabilities.

This manual provides comprehensive instructions for the installation, operation, and maintenance of your STC-3028 controller. Please read it thoroughly before use to ensure proper functionality and safety.

2. Product Overview

The STC-3028 controller integrates temperature and humidity monitoring with relay outputs for controlling external heating, cooling, and humidifying/dehumidifying devices. Its clear digital display shows current temperature and humidity readings.

Figure 2.1: Front view of the STC-3028 controller, displaying temperature and humidity readings.

Key Features:

- Dual display for simultaneous temperature and humidity readings.
- Temperature control range: -55°C to 120°C.
- Humidity control range: 0% to 100% RH.
- Switchable modes between cooling/heating and humidifying/dehumidifying.
- Temperature calibration function.
- Refrigerating control output delay protection.
- Alarm function for temperature and sensor errors.
- NTC sensor for accurate temperature measurement.

Figure 2.2: The NTC temperature sensor probe, which is 1 meter in length.

3. Specifications

Parameter	Value
Model	STC-3028
Power Supply	DC 24V
Power Consumption	<3W
Temperature Measuring Range	-55°C to 120°C
Temperature Accuracy	0.1°C
Humidity Measuring Range	0% to 100% RH
Humidity Accuracy	0.1% RH
Sensor Type	NTC sensor (Temperature)
Sensor Error Delay	1 minute
Relay Contact Capacity (Cool/Heat)	10A/240VAC
Ambient Operating Temperature	0°C to 60°C
Storage Temperature	-30°C to 75°C
Relative Humidity (Operating)	20% to 85% (Non-condensing)

Parameter	Value
Front Panel Size	75mm x 34.5mm
Mounting Size	71mm x 29mm
Product Size	75mm x 34.5mm x 85mm
Sensor Length	1 meter (including probe)

Figure 3.1: Dimensions of the controller (STC-3018 shown, dimensions are similar for STC-3028).

4. Setup and Installation

4.1 Mounting

The controller is designed for panel mounting. Ensure the mounting hole dimensions are 71mm x 29mm. Secure the controller using the clips on the sides.

4.2 Wiring Diagram

Important Safety Note: All wiring should be performed by a qualified professional. Ensure the power supply is disconnected before performing any wiring to prevent electric shock. Strictly distinguish between the interface of the relay, sensor, and power. Ensure proper connection of the sensor and power wires. Sensor down-lead and power wire should be kept a proper distance apart to avoid interference.

Figure 4.1: Wiring Diagram (STC-3018 shown, applicable to STC-3028). Note the power supply, sensor, heating, and cooling connections.

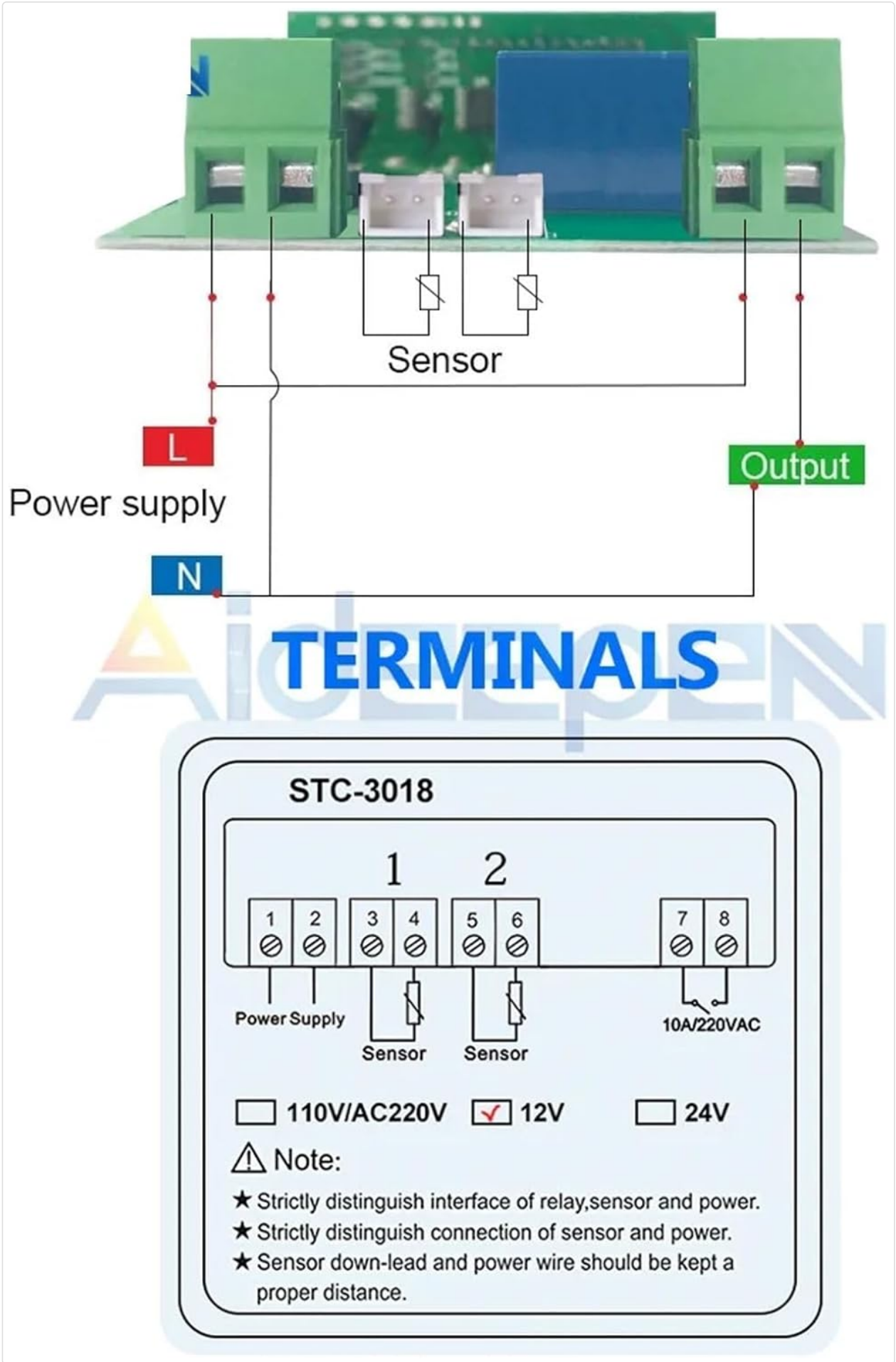

Figure 4.2: Terminal connections for the controller (STC-3018 shown, similar for STC-3028).

1. **Power Supply:** Connect the DC 24V power supply to terminals 1 and 2 as indicated in the diagram. Ensure correct polarity.

2. **Temperature Sensor:** Connect the NTC temperature sensor to terminals 3 and 4.
3. **Humidity Sensor:** Connect the humidity sensor to terminals 5 and 6.
4. **Output Relays:**
    - Connect your heating device (e.g., water heater) to the heating output terminals (7 and 8).
    - Connect your cooling device (e.g., refrigerator, fan) to the cooling output terminals (9 and 10).

5. Operating Instructions

5.1 Setting Temperature Parameters

The controller allows you to set a start temperature (temperature at which heating/cooling begins) and a stop temperature (temperature at which heating/cooling ends).

1. **Set Start Temperature:** Press the "Up" button once to display the current start temperature. Long press the "Up" button for approximately 3 seconds until the display flashes. Use the "Up" and "Down" buttons to adjust the desired start temperature. Press the "Set" button to confirm.
2. **Set Stop Temperature:** Press the "Down" button once to display the current stop temperature. Long press the "Down" button for approximately 3 seconds until the display flashes. Use the "Up" and "Down" buttons to adjust the desired stop temperature. Press the "Set" button to confirm.

5.2 Setting Humidity Parameters

Similar to temperature, you can set start and stop humidity levels for humidifying or dehumidifying operations.

1. **Set Start Humidity:** Press the "Set" button (for humidity) once to display the current start humidity. Long press the "Set" button for approximately 3 seconds until the display flashes. Use the "Up" and "Down" buttons to adjust the desired start humidity. Press the "Set" button again to confirm.
2. **Set Stop Humidity:** Press the "Rst" button (for humidity) once to display the current stop humidity. Long press the "Rst" button for approximately 3 seconds until the display flashes. Use the "Up" and "Down" buttons to adjust the desired stop humidity. Press the "Rst" button again to confirm.

5.3 Switching Temperature Display Units (°C/°F)

The controller can display temperature in Celsius (°C) or Fahrenheit (°F).

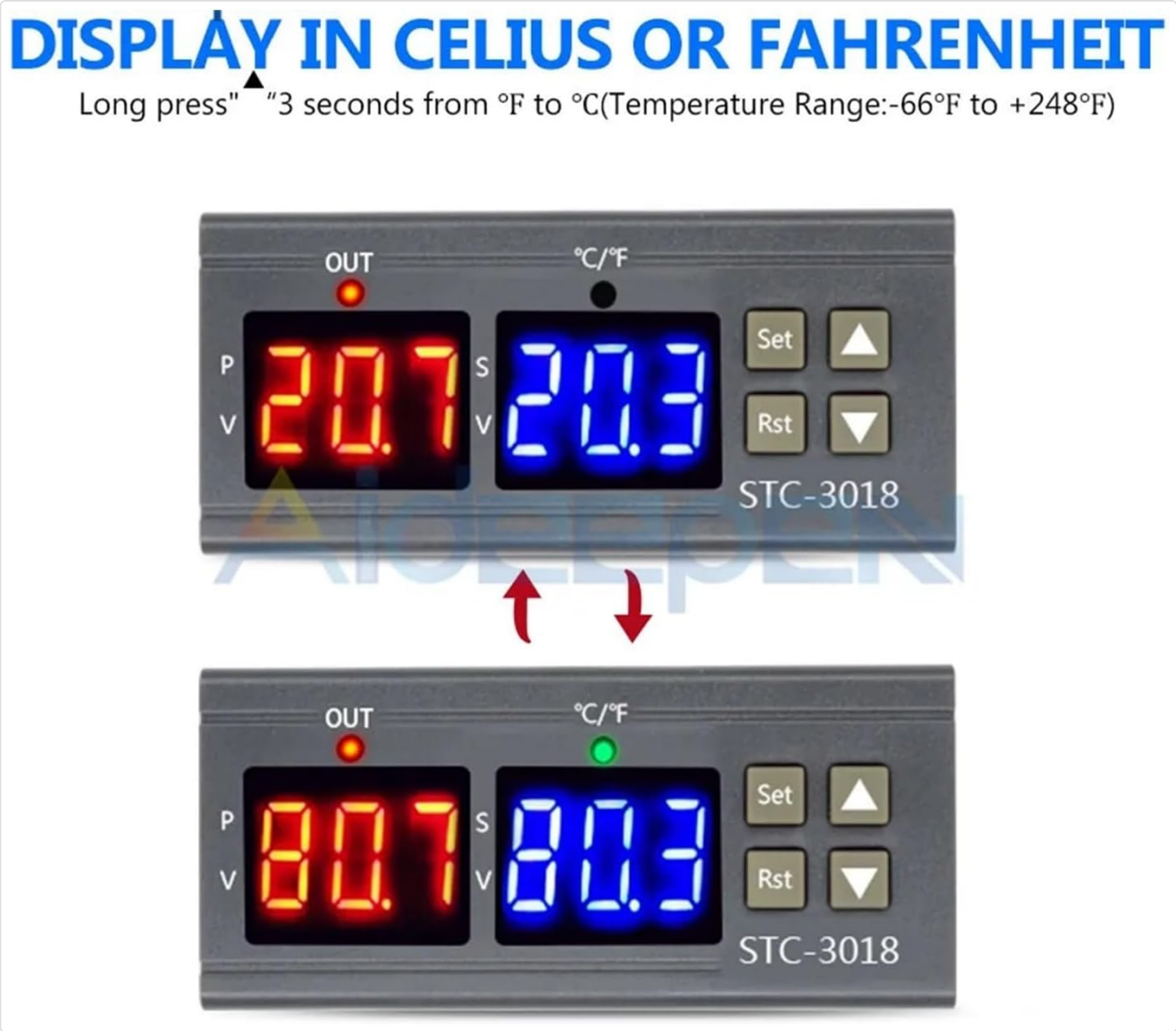

Figure 5.1: Switching between Celsius and Fahrenheit display (STC-3018 shown, similar for STC-3028).

To switch between Celsius and Fahrenheit, long press the "Set" button (for temperature) for approximately 3 seconds. The display will toggle between °C and °F. Release the button when the desired unit is shown.

5.4 Advanced Settings (Code Instruction)

The controller has various programmable codes for advanced settings such as temperature calibration, differential settings, and delay protection. Refer to the specific code instructions provided with your product for detailed programming steps. Generally, these involve long-pressing the 'Set' button to enter the parameter setting mode and then navigating through codes using 'Up'/'Down' buttons.

6. Maintenance

To ensure the longevity and accurate operation of your STC-3028 controller, follow these maintenance guidelines:

- **Cleaning:** Regularly wipe the controller's surface with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure no liquid enters the device.
- **Sensor Care:** Keep the temperature and humidity sensors clean and free from dust or debris. Avoid exposing the sensors to extreme physical stress or corrosive environments.
- **Environmental Conditions:** Operate the controller within the specified ambient temperature and humidity ranges to prevent damage. Avoid direct sunlight and excessive vibrations.

- **Connection Check:** Periodically inspect all wiring connections to ensure they are secure and free from corrosion.

7. Troubleshooting

If you encounter issues with your STC-3028 controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Display shows "LLL" or "HHH"	Sensor error or temperature/humidity out of range.	Check sensor connection. Ensure sensor is not damaged. Verify temperature/humidity is within the device's operating range.
Controller not powering on	No power supply or incorrect wiring.	Check power connections (DC 24V). Ensure power source is active. Verify wiring according to the diagram.
Output relay not activating	Incorrect set parameters, output delay, or wiring issue.	Verify start/stop temperature/humidity settings. Check for any active output delay protection. Inspect wiring to the external device.
Inaccurate readings	Sensor calibration needed or sensor interference.	Perform temperature/humidity calibration if necessary. Ensure sensor is not near heat sources or strong electromagnetic fields.

8. Warranty and Support

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

If you require further assistance or have questions not covered in this manual, please contact CEMELI customer support through the official channels provided by the manufacturer or your point of purchase.