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Walfront STC-3028

Walfront STC-3028 Digital Temperature and Humidity Controller User Manual

Model: STC-3028

1. Introduction

The Walfront STC-3028 is a microcomputer intelligent digital display thermostat designed for precise control of both temperature and humidity. Featuring a dual-screen display, it provides real-time readings and allows for accurate adjustment of environmental conditions. This controller is equipped with an integrated sensor and is suitable for a wide range of applications requiring automated temperature and humidity management, such as in incubators, greenhouses, and industrial processes.

2. Safety Information

Please read and understand all safety instructions before operating the device to prevent injury or damage.

- Ensure the power supply voltage matches the specified voltage of the controller (12V/24V/110V-220VAC). Incorrect voltage can cause damage.
- All wiring should be performed by a qualified professional to avoid electrical hazards.
- Do not expose the device to water or excessive moisture.
- Keep the device away from flammable materials.
- The ABS flame retardant plastic shell provides safety, but proper ventilation should still be ensured.
- Strictly distinguish the interface connection of the relay and power. The sensor wire should be kept a proper distance from the load down wire.

3. Product Overview

The STC-3028 controller features a compact design with a clear digital display for both temperature and humidity. It includes an integrated sensor for accurate environmental monitoring.

Components

- STC-3028 Controller Unit
- Integrated Temperature and Humidity Sensor

Figure 3.1: Walfront STC-3028 Temperature and Humidity Controller with integrated sensor.

4. Specifications

Feature	Specification
Product Model	STC-3028
Optional Voltage	12V / 24V / 110V - 220VAC
Temperature Control Range	-20 °C ~ 80 °C
Humidity Control Range	0% ~ 100% RH
Screen Display	Dual Screen Dual Display (Temperature & Humidity)
Machine Power Consumption	Less Than 3W
Temperature Measurement Accuracy	1°C
Humidity Measurement Accuracy	0.1% RH
Resolution	0.1 °C
Sensor Type	Integrated sensor
Ambient Temperature (Operating)	0 ~ 60°C
Relative Humidity (Operating)	0% ~ 100% (no condensation)
Machine Size	Approx. 75 x 34.5 x 85mm (3 x 1.4 x 3.3in)
Installation Opening	Approx. 71 x 29mm (2.8 x 1.1in)
Housing Material	ABS flame retardant plastic shell
Product Dimensions	5.11 x 4.28 x 3.54 inches
Item Weight	5.3 ounces

Feature	Specification
UPC	739904722113

Figure 4.1: Dimensions of the STC-3028 controller and its integrated sensor.

5. Setup

5.1 Installation

The STC-3028 is designed for panel mounting. Ensure the installation opening is approximately 71 x 29mm (2.8 x 1.1in). Secure the device firmly in place after inserting it into the opening.

5.2 Wiring Diagram

Proper wiring is crucial for the safe and correct operation of the controller. Refer to the diagrams below for connection instructions. There are two primary wiring configurations:

1. **Diagram 1: Load Independent Power Supply** - The controller and the load (heating/cooling device) are powered by separate power sources.
2. **Diagram 2: Same Load Power Supply** - The controller and the load share the same power source.

Ensure all connections are secure and insulated. Pay close attention to the input voltage (110-220VAC, 12V, or 24V) and the relay output ratings (10A 220VAC).

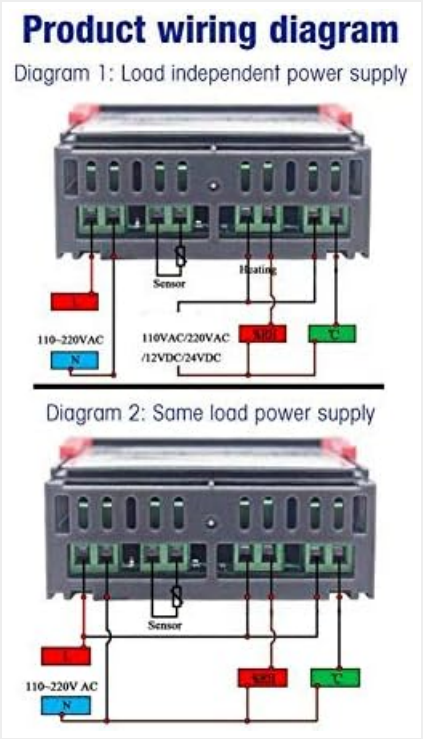

Figure 5.1: Product wiring diagrams for STC-3028. Diagram 1 shows load independent power supply, and Diagram 2 shows same load power supply.

6. Operating Instructions

The STC-3028 features a user-friendly interface with dual digital displays and intuitive buttons for setting parameters.

Figure 6.1: Labeled controls and display of the STC-3028 controller.

6.1 Display and Indicators

- **Left Digital Display (Red):** Shows the current temperature value (°C).
- **Right Digital Display (Blue):** Shows the current humidity value (%RH).
- **Temperature Work Indicator (Red LED):** Illuminates when the temperature control output is active.
- **Humidity Work Indicator (Blue LED):** Illuminates when the humidity control output is active.

6.2 Setting Temperature and Humidity

To set the desired temperature and humidity ranges, use the adjustment buttons:

1. **Start Temperature Adjustment Button (Up Arrow, left side):** Press to increase the start temperature set point.
2. **Stop Temperature Adjustment Button (Down Arrow, left side):** Press to decrease the stop temperature set point.

3. **Start Humidity Adjustment Button (Up Arrow, right side):** Press to increase the start humidity set point.
4. **Stop Humidity Adjustment Button (Down Arrow, right side):** Press to decrease the stop humidity set point.

The controller will automatically activate heating/cooling or humidification/dehumidification based on the set parameters and the current readings.

7. Maintenance

Regular maintenance ensures the longevity and accuracy of your STC-3028 controller.

- **Cleaning:** Wipe the device with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure no liquid enters the device.
- **Sensor Care:** Keep the integrated sensor clean and free from dust or debris to ensure accurate readings. Do not immerse the sensor in liquid.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Environment:** Operate the controller within the specified ambient temperature and humidity ranges to prevent damage. Avoid environments with excessive dust or corrosive gases.

8. Troubleshooting

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

Problem	Possible Cause	Solution
Controller does not power on.	No power supply; Incorrect wiring; Blown fuse (if applicable).	Check power connection; Verify wiring according to diagram; Inspect fuse.
Display shows abnormal readings (e.g., '---' or 'HHH').	Sensor disconnected or damaged; Sensor outside measurement range.	Check sensor connection; Replace sensor if damaged; Ensure environment is within sensor's range.
Temperature/Humidity control not working.	Incorrect set points; Wiring issue to load; Load device malfunction.	Verify set points; Check wiring to heating/cooling/humidification/dehumidification device; Test load device independently.
Controller frequently cycles on/off.	Hysteresis (differential) setting too small; Sensor interference.	Adjust hysteresis setting (if available in advanced settings); Relocate sensor away from heat sources or drafts.

9. Warranty and Support

Walfront products are manufactured to high-quality standards. This product comes with a standard manufacturer's warranty against defects in materials and workmanship from the date of purchase. Please retain your proof of purchase for warranty claims.
For technical support, troubleshooting assistance, or warranty inquiries, please contact Walfront customer service through the retailer where the product was purchased or visit the official Walfront website for contact information.

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