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Walfront STC-3028

Walfront STC-3028 Digital Temperature and Humidity Controller User Manual

Model: STC-3028 (24V)

1. Introduction

Thank you for choosing the Walfront STC-3028 Digital Temperature and Humidity Controller. This device is designed for precise measurement and control of both temperature and humidity, featuring a dual digital display and an integrated sensor. It is suitable for various applications requiring automatic switching of cooling and heating equipment, such as in seafood machines or cooling water systems. This manual provides essential information for safe installation, operation, and maintenance of your controller.

2. Safety Instructions

- Read all instructions carefully before installation and operation.
- Ensure the power supply voltage matches the controller's specifications (24V DC for this model). Incorrect voltage can cause damage or fire.
- All wiring should be performed by a qualified electrician to prevent electric shock or damage to the device.
- Disconnect power before performing any wiring, installation, or maintenance.
- Do not operate the device in environments with excessive moisture, corrosive gases, or flammable materials.
- Keep the device away from strong electromagnetic interference.
- The plastic casing is made of flame-retardant ABS material for enhanced safety.

3. Product Overview

The STC-3028 is a microcomputer-based intelligent digital thermostat and hygrometer. It features two clear digital displays for simultaneous temperature and humidity readings, along with intuitive control buttons.



Figure 3.1: Front view of the Walfront STC-3028 controller and its integrated sensor.

3.1 Front Panel and Controls



Figure 3.2: Front panel layout and control functions.

1. Temperature Working Indicator: Illuminates when the temperature output is active.

2. Humidity Working Indicator: Illuminates when the humidity output is active.

Detected Temperature Value: Red LED display showing the current temperature.

Detected Humidity Value: Blue LED display showing the current relative humidity.

Temperature Start Setting Button (Up Arrow): Used to increase the temperature set point.

Temperature Stop Setting Button (Down Arrow): Used to decrease the temperature set point.

Humidity Start Setting Button (Up Arrow): Used to increase the humidity set point.

Humidity Stop Setting Button (Down Arrow): Used to decrease the humidity set point.

3.2 Dimensions



Figure 3.3: Physical dimensions of the controller and sensor.

- **Device Size:** Approximately 75 x 34.5 x 85 mm (3 x 1.4 x 3.3 inches)
- **Mounting Hole Size:** Approximately 71 x 29 mm (2.8 x 1.1 inches)
- **Sensor Cable Length:** Approximately 1000 mm (39.4 inches)

4. Installation and Wiring

4.1 Mounting

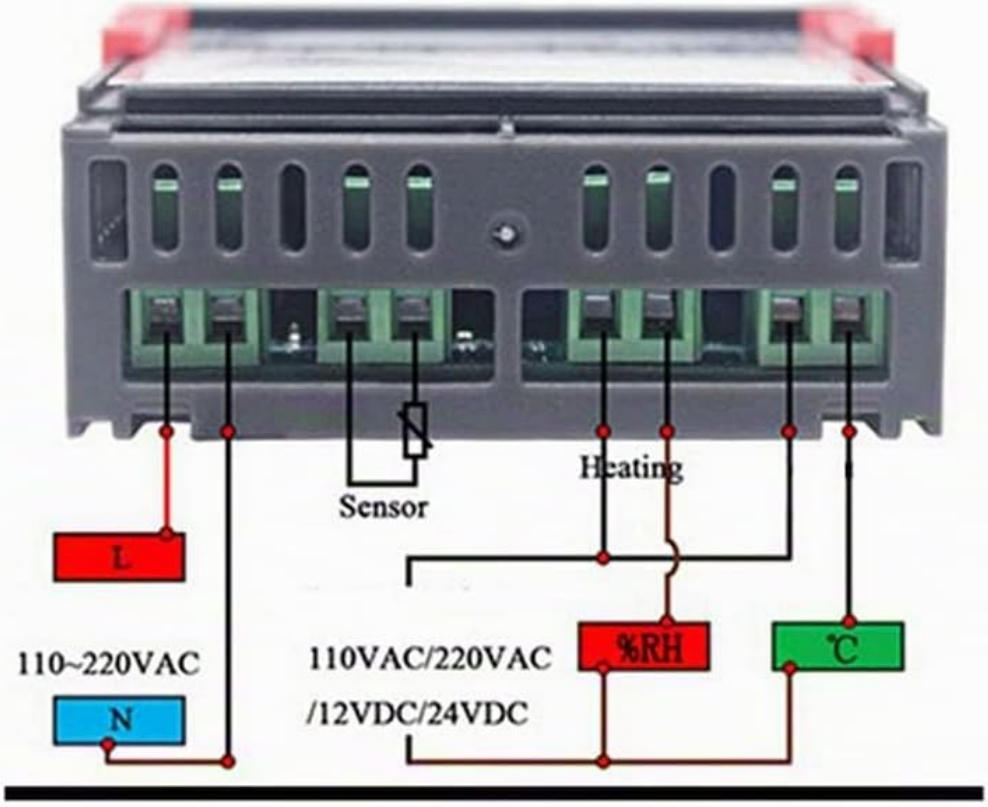
The controller is designed for panel mounting. Cut an opening of approximately 71 x 29 mm (2.8 x 1.1 inches) in your panel. Insert the controller from the front and secure it using the integrated clips.

4.2 Wiring Diagrams

WARNING: Ensure power is disconnected before performing any wiring. Incorrect wiring can damage the device or cause electrical hazards.

Schemat okablowania produktu

Schemat 1: Zasilanie niezależne od obciążenia



Schemat 2: Zasilanie tego samego obciążenia

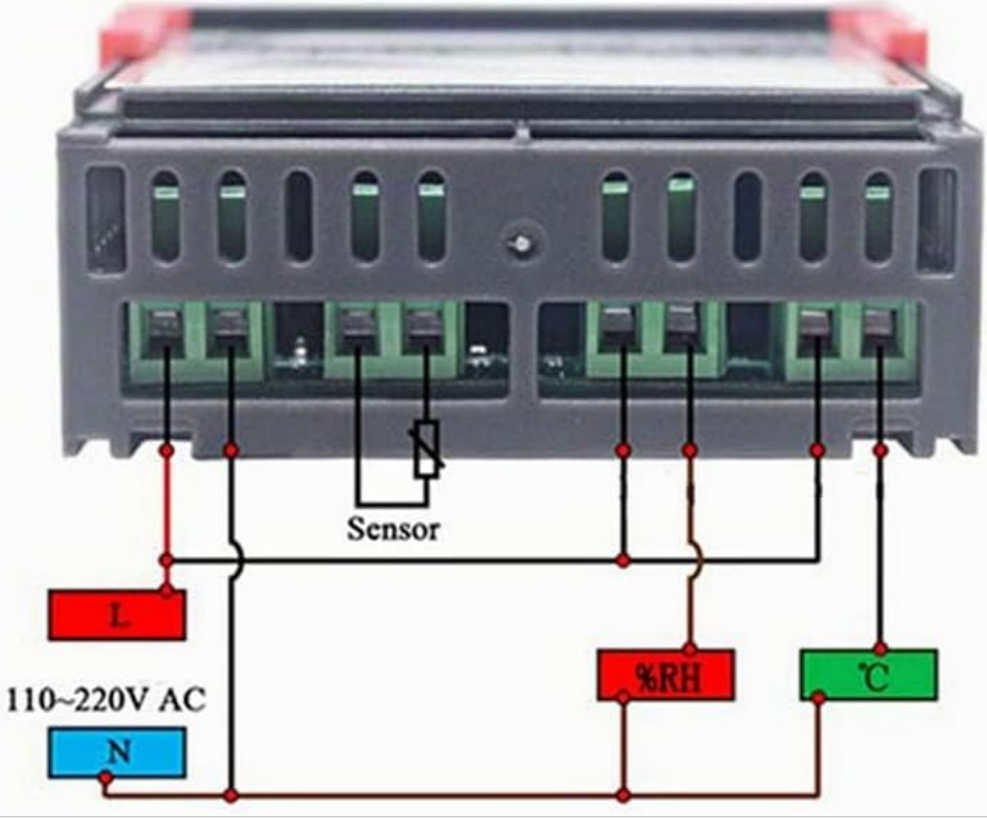


Figure 4.1: Product Wiring Diagrams.

The wiring terminals are located on the back of the unit. Refer to the diagrams above for proper connection. The STC-3028 supports two main wiring configurations:

Diagram 1: Independent Load Power Supply

In this configuration, the power supply for the controller is separate from the power supply for the controlled heating/cooling or humidifying/dehumidifying loads. This provides greater flexibility and isolation.

- Connect the main power supply (24V DC for this model) to the designated L and N terminals for the controller.
- Connect the integrated sensor to the 'Sensor' terminals.
- Connect your temperature control load (e.g., heater, cooler) to the '°C' output terminals.
- Connect your humidity control load (e.g., humidifier, dehumidifier) to the '%RH' output terminals.

Diagram 2: Same Load Power Supply

In this configuration, the controller and the controlled loads share the same power supply. This is a simpler setup for applications where isolation is not critical.

- Connect the main power supply (24V DC for this model) to the designated L and N terminals.
- Bridge the power supply to the load terminals as shown in the diagram.
- Connect the integrated sensor to the 'Sensor' terminals.
- Connect your temperature control load to the '°C' output terminals.
- Connect your humidity control load to the '%RH' output terminals.



Figure 4.2: Rear view of the controller showing terminal block.

5. Operating Instructions

Once the controller is correctly wired and powered on, it will display the current temperature and humidity readings.

5.1 Setting Temperature Parameters

1. **To Set Start Temperature:** Press and hold the 'Temperature Start Setting Button' (Up Arrow) for 3 seconds. The temperature display will flash. Use the Up/Down arrow buttons to adjust the desired start temperature. Press any other button or wait 5 seconds for the setting to be saved.
2. **To Set Stop Temperature:** Press and hold the 'Temperature Stop Setting Button' (Down Arrow) for 3 seconds. The temperature display will flash. Use the Up/Down arrow buttons to adjust the desired stop temperature. Press any other button or wait 5 seconds for the setting to be saved.

The controller will activate the temperature output when the measured temperature falls below the start temperature and deactivate it when it rises above the stop temperature (for heating mode), or vice-versa for cooling mode, depending on the internal logic (which is typically set by the start/stop values).

5.2 Setting Humidity Parameters

1. **To Set Start Humidity:** Press and hold the 'Humidity Start Setting Button' (Up Arrow) for 3 seconds. The humidity display will flash. Use the Up/Down arrow buttons to adjust the desired start humidity. Press any other button or wait 5 seconds for the setting to be saved.
2. **To Set Stop Humidity:** Press and hold the 'Humidity Stop Setting Button' (Down Arrow) for 3 seconds. The humidity display will flash. Use the Up/Down arrow buttons to adjust the desired stop humidity. Press any other button or wait 5 seconds for the setting to be saved.

The controller will activate the humidity output when the measured humidity falls below the start humidity and deactivate it when it rises above the stop humidity (for humidifying mode), or vice-versa for dehumidifying mode.

6. Maintenance

- **Cleaning:** Wipe the device with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Sensor Care:** Keep the sensor clean and free from dust or debris for accurate readings. Do not immerse the sensor in liquids.
- **Inspection:** Periodically check wiring connections for tightness and signs of wear.

7. Troubleshooting

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

- **No Display:**
  - Check power supply connections.
  - Ensure the power supply voltage matches the controller's requirements (24V).
- **Incorrect Readings:**
  - Ensure the sensor is properly connected.
  - Check if the sensor is clean and free from obstructions.
  - Verify the sensor is placed in an area representative of the environment being measured.
- **Output Not Activating:**
  - Check if the set temperature/humidity parameters are correct.
  - Verify load wiring connections.
  - Ensure the measured value is outside the set range to trigger the output.

If problems persist, please contact customer support.

8. Specifications

Feature	Specification
Product Model	STC-3028
Operating Voltage	24V DC
Temperature Control Range	-20°C ~ 80°C
Humidity Control Range	0% ~ 100% RH
Display Type	Dual Digital LED (Red for Temp, Blue for Humidity)
Power Consumption	Less than 3W
Temperature Measurement Accuracy	±1°C
Humidity Measurement Accuracy	±0.1% RH
Resolution	0.1°C / 0.1% RH
Sensor Type	Integrated Sensor
Ambient Temperature for Operation	0°C ~ 60°C
Relative Humidity for Operation	0% ~ 100% (non-condensing)
Device Dimensions	Approx. 75 x 34.5 x 85 mm (3 x 1.4 x 3.3 inches)
Mounting Hole Size	Approx. 71 x 29 mm (2.8 x 1.1 inches)
Housing Material	Flame-retardant ABS plastic

9. Warranty and Support

Walfront products are manufactured to high-quality standards. For warranty information or technical support, please refer to the documentation provided with your purchase or contact your retailer. Please have your product model (STC-3028) and purchase details ready when contacting support.

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