EVTSCAN ZFX-ST3012

EVTSCAN ZFX-ST3012 Digital Dual Display Temperature Controller

User Manual (AC220V Model)

Brand: EVTSCAN | Model: ZFX-ST3012

1. Introduction

The EVTSCAN ZFX-ST3012 is an intelligent digital temperature controller designed for precise temperature management. Featuring a dual display for simultaneous viewing of current and set temperatures, this device is suitable for a wide range of applications requiring accurate temperature control. This manual provides essential information for the safe and effective installation, operation, and maintenance of your ZFX-ST3012 controller.

Key Features:

- Wide temperature control range: -50°C to 110°C.
- High brightness digital tube display for clear and intuitive readings.
- Durable ABS material shell for high mechanical strength and anti-aging properties.
- Measurement accuracy of ±0.5°C.
- Waterproof thermal probe for enhanced safety and reliability.
- Data retention capability.

2. Safety Information

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

- **Electrical Safety:** Ensure the power supply voltage matches the controller's specified voltage (AC220V). All wiring should be performed by a qualified electrician in accordance with local electrical codes. Disconnect power before making any wiring connections or performing maintenance.
- **Environmental Conditions:** Do not expose the controller to excessive moisture, dust, or corrosive environments. Operate within the specified temperature and humidity ranges.

- **Probe Handling:** The temperature probe is waterproof, but avoid excessive bending or pulling of the cable. Do not immerse the main controller unit in water.
- **Intended Use:** This device is intended for temperature control applications as described in this manual. Do not use it for purposes other than its intended design.
- **Children and Pets:** Keep the device out of reach of children and pets.

3. Product Overview

The EVTSCAN ZFX-ST3012 features a compact design with a clear dual digital display and intuitive control buttons. The unit is equipped with two NTC temperature probes for accurate measurement.

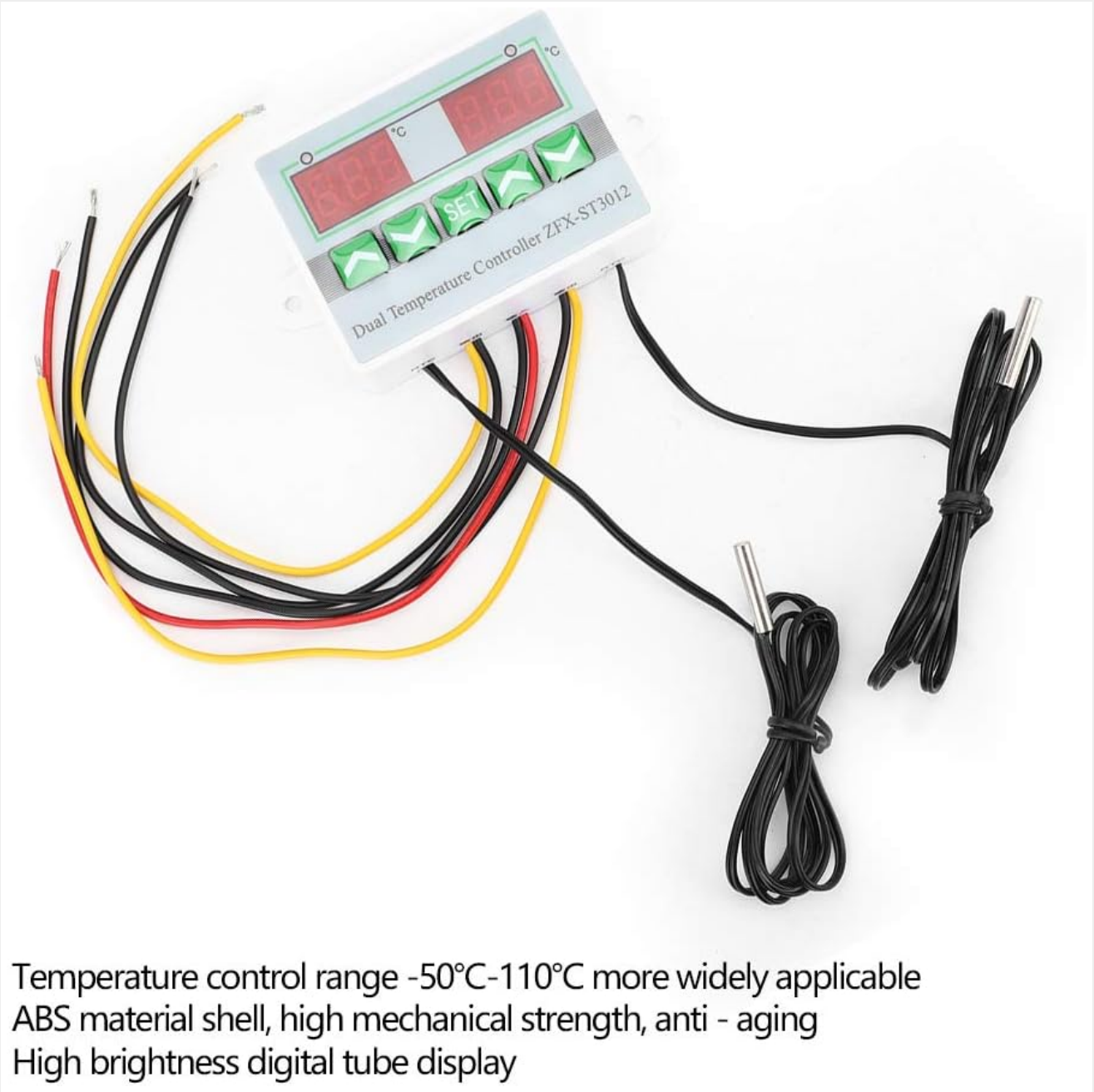

Figure 3.1: Front view of the EVTSCAN ZFX-ST3012 Digital Temperature Controller, showing the dual digital displays, control buttons (Up, Down, SET), and connected NTC temperature probes.

Components:

- **Dual Digital Displays:** Two 3-digit LED displays show the current temperature and the set temperature or parameter values.
- **Control Buttons:**

    - **SET Button:** Used to enter and confirm parameter settings.
    - **Up Arrow Button:** Used to increase values or navigate menu options.
    - **Down Arrow Button:** Used to decrease values or navigate menu options.
- **NTC Temperature Probes:** Two NTC10K probes for temperature sensing.
- **Wiring Terminals:** Clearly labeled terminals for power input, output, and probe connections.

4. Specifications

Parameter	Value
Product Model	ZFX-ST3012
Power Supply Voltage	AC220V
Temperature Control Range	-50°C ~ 110°C
Temperature Control Accuracy	±0.5°C
Measurement Input	NTC10K L=1 meter waterproof probe
Output Capacity	Up to 10A
Fixed Hole Distance	M3 (screws)
Shell Material	ABS
Data Retention	Yes

5. Setup and Wiring

Proper wiring is crucial for the safe and correct operation of the ZFX-ST3012 controller. Ensure power is disconnected before proceeding with any wiring.

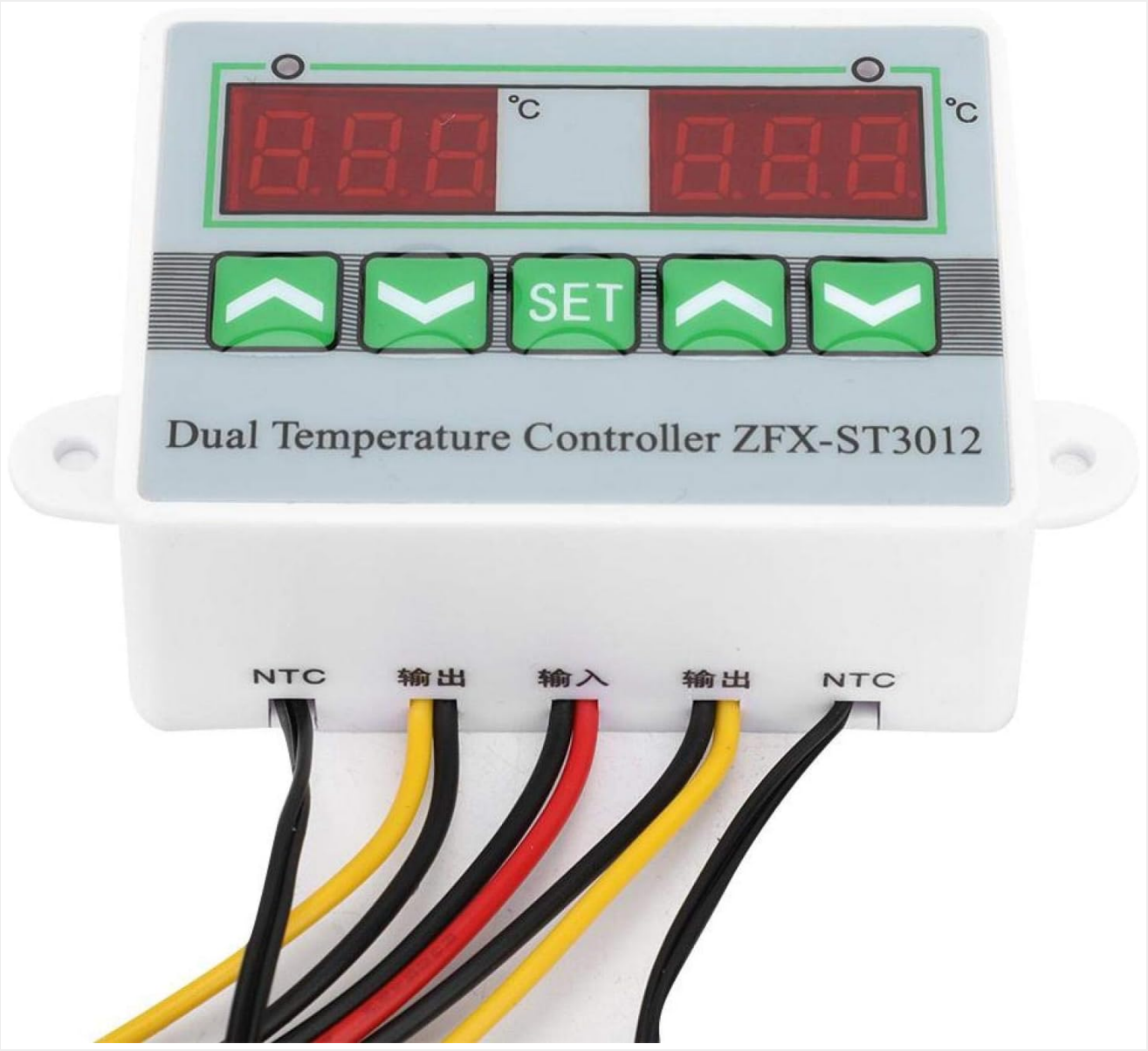

Figure 5.1: Close-up view of the ZFX-ST3012 wiring terminals, showing labels for NTC probes, output, and input connections.

Wiring Instructions:

1. **Power Input (AC220V):** Connect the AC220V power supply to the terminals labeled ' ' (Input). Ensure correct live and neutral connections.
2. **Load Output:** Connect your heating or cooling device (load) to the terminals labeled ' ' (Output). The controller acts as a switch for this load.
3. **NTC Probes:** Connect the two NTC temperature probes to the terminals labeled 'NTC'. The probes are non-polar, so connection order does not matter. Ensure probes are placed in the environment where temperature needs to be measured.
4. **Mounting:** The controller can be mounted using the fixed M3 screw holes on its sides.

After all connections are securely made, you may apply power to the controller.

6. Operating Instructions

The ZFX-ST3012 controller is designed for straightforward operation. The left display shows the current temperature, and the right display shows the set temperature or parameter value.

Setting the Target Temperature:

1. Press the **SET** button once. The right display will flash, indicating it's in setting mode.
2. Use the **Up Arrow** or **Down Arrow** buttons to adjust the target temperature.
3. Press the **SET** button again to confirm the setting and exit. If no button is pressed for a few seconds, the setting will automatically save and exit.

Advanced Parameter Settings:

To access advanced settings, press and hold the **SET** button for approximately 3 seconds until the display shows 'P0'. Use the **Up Arrow** or **Down Arrow** buttons to navigate through the parameters (P0-P8). Press **SET** once to view/edit a parameter, then use **Up**/**Down** to change the value, and **SET** again to confirm. Hold **SET** to exit the menu, or it will exit automatically after a period of inactivity.

Figure 6.1: Back label of the ZFX-ST3012 controller, detailing the advanced parameter functions.

Parameter	Description	Default Value	Range
P0	Cooling/Heating Mode	C (Cooling)	H (Heating) / C (Cooling)
P1	Hysteresis Setting	2.0°C	0.1°C - 30.0°C
P2	Upper Temperature Limit	110°C	-50°C - 110°C
P3	Lower Temperature Limit	-50°C	-50°C - 110°C
P4	Temperature Correction	0.0°C	-10.0°C - 10.0°C
P5	Delay Start Time	0 minutes	0 - 10 minutes

Parameter	Description	Default Value	Range
P6	High Temperature Alarm	OFF	OFF / -50°C - 110°C
P7	Data Lock	OFF	ON / OFF
P8	Restore Factory Settings	OFF	ON / OFF

Note on P0 (Cooling/Heating Mode):

- **H (Heating Mode):** The output will turn ON when the current temperature is below (Set Temperature - Hysteresis) and turn OFF when it reaches the Set Temperature.
- **C (Cooling Mode):** The output will turn ON when the current temperature is above (Set Temperature + Hysteresis) and turn OFF when it reaches the Set Temperature.

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your temperature controller.

- **Cleaning:** Wipe the controller's surface with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure no liquids enter the device.
- **Probe Inspection:** Periodically check the temperature probes and their cables for any signs of damage, wear, or corrosion. Replace damaged probes immediately.
- **Connection Check:** Ensure all wiring connections remain secure. Loose connections can lead to intermittent operation or safety hazards.
- **Storage:** If storing the device for an extended period, keep it in a dry, dust-free environment away from direct sunlight and extreme temperatures.

8. Troubleshooting

Refer to the following table for common issues and their solutions.

Problem	Possible Cause	Solution
Display shows 'HHH'	Temperature probe error (open circuit or temperature exceeds upper limit).	Check probe connection. Replace probe if damaged. Ensure temperature is within range.
Display shows 'LLL'	Temperature probe error (short circuit or temperature below lower limit).	Check probe connection. Replace probe if damaged. Ensure temperature is within range.
Display shows '---'	No temperature reading.	Verify probe connection. Ensure probe is properly inserted.
Controller not powering on	No power supply or incorrect wiring.	Check power connections (AC220V). Ensure power outlet is functional.
Output not switching	Incorrect temperature settings (Set Temp, Hysteresis), P0 mode, or faulty load.	Verify Set Temperature and Hysteresis. Check P0 (Heating/Cooling) mode. Test the connected load independently.

Problem	Possible Cause	Solution
Temperature reading is inaccurate	Probe placement, P4 temperature correction, or faulty probe.	Ensure probe is correctly placed. Adjust P4 (Temperature Correction) if needed. Compare with a known accurate thermometer. Replace probe if necessary.

9. Warranty and Support

This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. For specific warranty terms and conditions, please refer to the documentation provided at the time of purchase or contact your retailer.

For technical support, troubleshooting assistance beyond this manual, or inquiries regarding replacement parts, please contact the EVTSCAN customer service or your authorized distributor. When contacting support, please have your product model (ZFX-ST3012) and purchase information readily available.