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DONGKER XY-WT04

DONGKER XY-WT04 Digital Thermostat

User Manual

Model: XY-WT04 | Brand: DONGKER

1. Introduction

The DONGKER XY-WT04 is a high-precision digital temperature controller module designed for a wide range of applications requiring accurate temperature monitoring and control. It features a K-type thermocouple input, an LCD display for clear readings, and a 10A relay output for controlling external loads. This manual provides detailed instructions for its setup, operation, and maintenance.



Figure 1: DONGKER XY-WT04 Digital Thermostat with included K-type thermocouple sensor.

2. Key Features

- Heating/cooling automatic control capability.
- Switchable Celsius (℃) and Fahrenheit (℉) display.
- Automatic control output status.
- Simultaneous temperature detection.
- Automatic recognition of working mode.
- High and low temperature automatic alarm function.
- Automatic data saving.
- Wide temperature measuring range: -99℃ to 999℃ or -99℉ to 999℉.
- Standard size ABS housing for easy integration.
- 10A relay switch output.
- Programmable display temperature calibration.

3. Specifications

Parameter	Value
Working Voltage	DC 6V-30V
Control Type	Button / MODBUS
Supported Sensor	K-type thermocouple (1 meter included)
Temperature Range	-99℃ to 999℃ or -99℉ to 999℉
Temperature Control Precision	0.1℃ / ℉
Temperature Measurement Error	+/-2℃ / ℉
Output Type	Relay output (cannot output voltage)
Load Capacity	AC220V / DC30V 10A
PCB Working Temperature	-40℃ to 85℃
Working Humidity Range	5% - 95% RH
Module Size	79mm x 43mm x 37mm
Item Weight	3.52 ounces (0.1 Kilograms)
Display Type	LCD



Figure 2: Physical dimensions of the XY-WT04 module.

4. Setup and Wiring

Proper wiring is crucial for the safe and correct operation of the XY-WT04 thermostat. Refer to the wiring diagram below for connections.

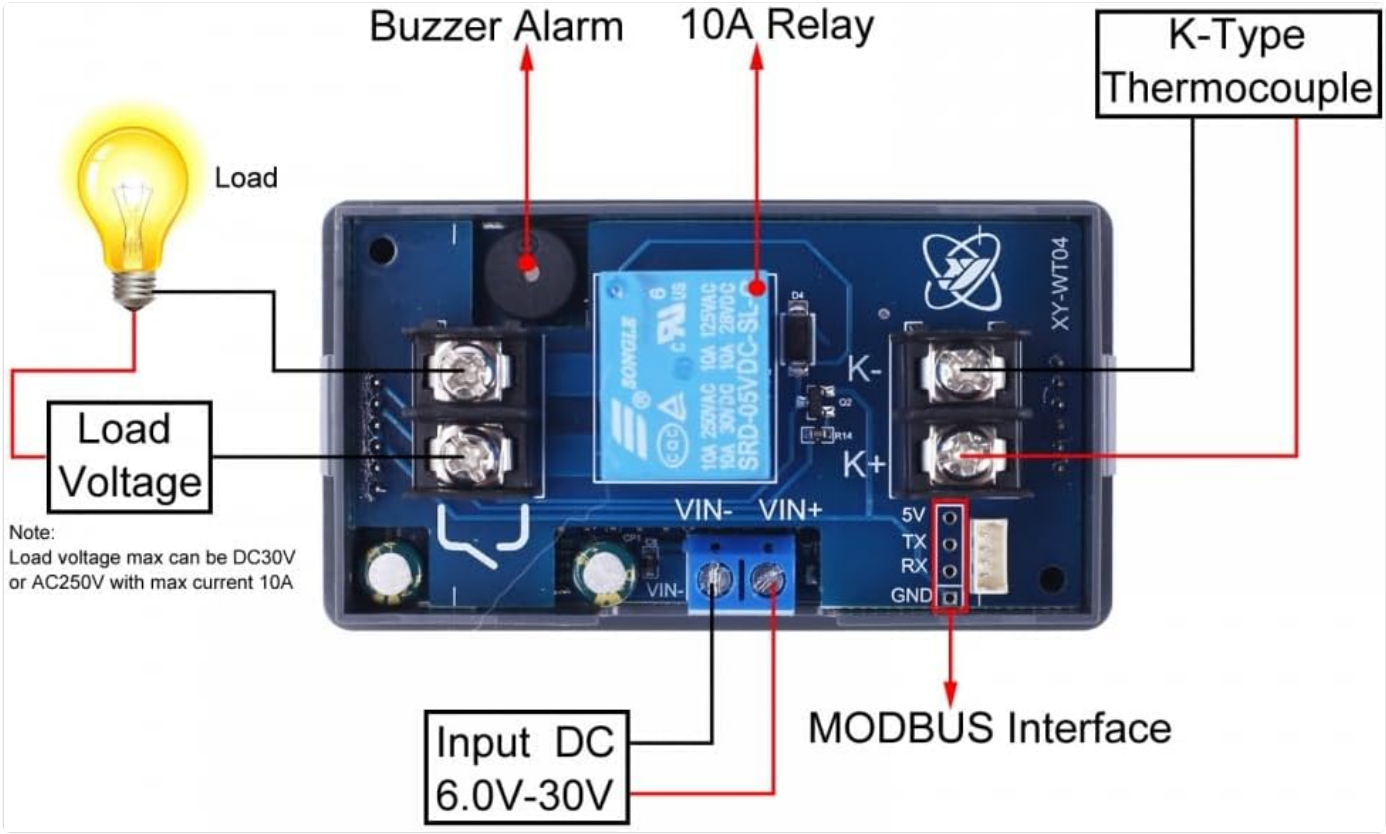


Figure 3: Wiring diagram showing connections for input power, K-type thermocouple, and load.

4.1. Connection Points:

- **VIN-** / **VIN+**: Power input terminals. Connect DC 6V-30V power supply.
- **K-** / **K+**: K-type thermocouple input terminals. Connect the included 1-meter K-type thermocouple sensor. Ensure correct polarity.
- **Relay Output Terminals**: These terminals provide a switch closure (relay output) for controlling an external load. **Important: This is a relay output and does not provide voltage. The load requires its own separate power supply.**
- **5V** / **TX** / **RX** / **GND**: MODBUS Interface for advanced control (refer to MODBUS protocol documentation if using this feature).

4.2. Installation Steps:

1. Ensure all power sources are disconnected before wiring.
2. Mount the XY-WT04 module in a suitable enclosure or panel, considering its dimensions (79x43x37mm).
3. Connect the K-type thermocouple to the K- and K+ terminals.
4. Connect your external load to the relay output terminals. Remember to provide a separate power supply for the load.
5. Connect the DC 6V-30V power supply to the VIN- and VIN+ terminals.
6. Double-check all connections for correctness and security before applying power.

5. Operating Instructions

The XY-WT04 features an intuitive LCD display and four control buttons for easy operation.

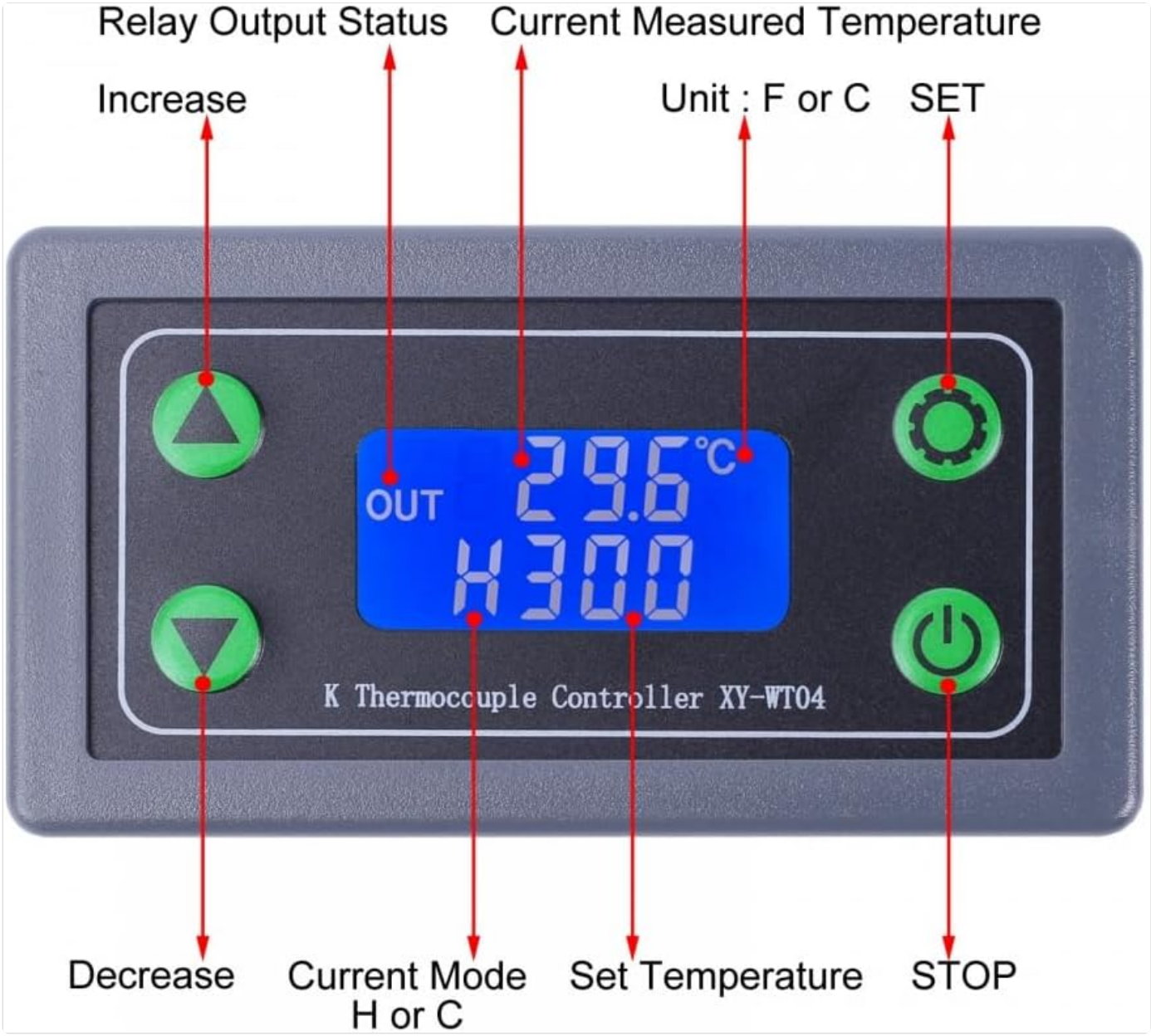


Figure 4: Front panel layout with button and display indicators.

5.1. Button Functions:

- **Up Arrow (▲)**: Increases values or navigates menus.
- **Down Arrow (▼)**: Decreases values or navigates menus.
- **Gear Icon (⚙) / SET**: Enters settings mode or confirms selections.
- **Power Icon ( ) / STOP**: Stops operation or exits settings.

5.2. Display Indicators:

- **OUT**: Indicates the relay output status (active when lit).
- **Current Measured Temperature**: Displays the real-time temperature detected by the K-type thermocouple.
- **Unit (°C or °F)**: Shows the selected temperature unit.
- **Current Mode (H or C)**: Indicates Heating (H) or Cooling (C) mode.
- **Set Temperature**: Displays the target temperature set by the user.

5.3. Basic Operation:

1. **Power On**: Apply DC 6V-30V power to the VIN terminals. The LCD will light up.
2. **View Current Temperature**: The main display shows the current measured temperature.
3. **Set Target Temperature**:
    - Press the **Gear Icon (⚙)** button once to enter the setting mode for the target temperature.
    - Use the **Up (▲)** and **Down (▼)** arrow buttons to adjust the desired temperature.
    - Press the **Gear Icon (⚙)** button again to confirm and save the setting, or press the**Power Icon ( )** button to exit without saving.
4. **Switching Heating/Cooling Mode**: (Detailed instructions for mode switching are typically found in a more comprehensive manual or depend on specific parameter settings. Based on the provided data, this is an automatic recognition feature.) The device automatically recognizes the working mode (Heating 'H' or Cooling 'C') based on the set temperature and current temperature relative to the hysteresis/differential settings.
5. **Temperature Unit Conversion (°C/°F)**: This function is typically accessed via a specific button combination or a menu setting. Refer to the device's full programming guide for details.

6. Applications

The DONGKER XY-WT04 is versatile and can be used in various temperature control scenarios, including:

- Control cabinets
- Production workshops
- Hatching aquaculture control systems
- Tobacco industry processes
- Printing house temperature regulation
- Aquarium temperature control
- Wood-fired boiler systems
- Smart home automation
- Industrial control systems
- Automatic irrigation systems
- Indoor ventilation control
- General protection equipment

7. Important Notes and Warnings

- **Relay Output Mode**: The XY-WT04 operates in relay output mode and**cannot be used as a power module**. It does not output voltage. The connected load must be powered by a separate, independent power supply.
- **Sensor Connection**: A buzzer will alarm if no K-type thermocouple sensor is connected or if it is improperly connected. Ensure the sensor is securely attached.
- Always read this user manual and product description thoroughly before use to ensure proper installation and operation.
- Ensure the load connected to the relay does not exceed the specified maximums: AC220V/DC30V 10A.
- Observe proper polarity when connecting the power supply (VIN- / VIN+).

8. Troubleshooting

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Buzzer alarming continuously.	No K-type thermocouple sensor connected or improperly connected.	Ensure the K-type thermocouple is securely connected to the K- and K+ terminals with correct polarity.
Display is off or unit not powering on.	Incorrect power supply voltage or no power connected.	Verify that a DC 6V-30V power supply is connected correctly to VIN- and VIN+. Check power source.
Load not switching on/off.	Load not properly wired or not receiving its own power supply. Relay capacity exceeded.	Confirm the load has its own separate power supply. Check wiring to relay terminals. Ensure load current/voltage is within 10A, AC220V/DC30V limits.
Inaccurate temperature readings.	Sensor faulty, improperly placed, or needs calibration.	Check sensor for damage. Ensure sensor is placed correctly to measure the desired temperature. Consider temperature calibration if available in advanced settings.

9. Maintenance

The DONGKER XY-WT04 is designed for reliable operation with minimal maintenance. Follow these general guidelines:

- **Cleaning**: Periodically clean the module's exterior with a soft, dry cloth. Avoid using abrasive cleaners or solvents.
- **Environment**: Ensure the module operates within its specified working temperature and humidity ranges (-40°C~85°C, 5%-95%RH). Avoid exposure to excessive dust, moisture, or corrosive environments.
- **Connections**: Periodically check all wiring connections to ensure they remain secure and free from corrosion.
- **Sensor Care**: Handle the K-type thermocouple sensor with care. Avoid bending or damaging the probe and cable.

10. Package Contents

The standard package includes the following items:

- 1 x DONGKER XY-WT04 Temperature Controller Module
- 1 x 100cm K-type thermocouple temperature sensor

11. Warranty and Support

DONGKER products are manufactured to high-quality standards. For any questions, technical support, or warranty inquiries, please contact DONGKER customer service. We are committed to providing satisfactory after-sales service. Please refer to your purchase documentation or the officialDONGKER website for specific warranty terms and contact information.

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