JAMHER HXR-PWM-SDT

JAMHER 4-Wire PWM Fan Temperature Controller User Manual

Model: HXR-PWM-SDT | Brand: JAMHER

1. Product Overview

The JAMHER 4-Wire PWM Fan Temperature Controller is designed to manage fan speed based on temperature readings, ensuring optimal cooling performance and energy efficiency. It automatically adjusts fan speed as temperatures fluctuate, increasing speed when temperatures rise and decreasing it when cooling demand is low. This controller supports 4-wire PWM fans operating at 12V and features a digital display for real-time temperature and fan speed monitoring.

Key features include dual control modes (manual and automatic), a temperature probe for precise monitoring, and a clear digital display that shows fan speed in units of 100 RPM, accommodating high-performance fans for industrial or professional applications.



Image 1.1: The JAMHER 4-Wire PWM Fan Temperature Controller integrated into different cooling setups.

2. Specifications

Power Supply Voltage	DC12V
Voltage Range	DC8-16V
Circuit Self-Consumption	Less than 40mA (at 12V)
Fan Current	Not exceeding 3.5A
PWM Range	1-100% (± 0.5%)
PWM Frequency	25KHZ (± 1KHZ)
PWM Signal Amplitude	5V (no-load)
Max Readable RPM	30,000 RPM (300 x 100 RPM)

Temperature Measurement Range	-9.9 to 99.9 °C
Temperature Measurement Error	Less than 1.2°C (0-50°C), less than 2°C (other ranges)
Fan Compatibility	4-wire PWM fans (12V) with 2510-4P standard interface (2.54mm pin spacing)
Item Model Number	HXR-PWM-SDT
Dimensions	7.48 x 4.57 x 1.18 inches
Item Weight	0.634 ounces



Image 2.1: Product dimensions and component sizes for installation planning.

3. Setup

1. **Connect the Temperature Probe:** Attach the provided temperature probe to the designated port on the controller. Ensure the probe is securely connected. The probe has a wire length of approximately 40 centimeters (15.75 inches), allowing flexible placement near the thermistor or areas requiring precise temperature monitoring.

2. **Connect the Fan(s):** Connect your 4-wire PWM fan(s) to the controller's fan output ports. This controller is designed for 12V 4-wire PWM fans with a 2510-4P standard interface (2.54mm pin spacing).
3. **Power Connection:** Connect the controller to a DC12V power source. Ensure the power supply voltage is within the DC8-16V range.
4. **Initial Power On:** Once all connections are secure, power on the device. The digital display will illuminate, showing the current temperature and fan speed (if a fan is connected and running).

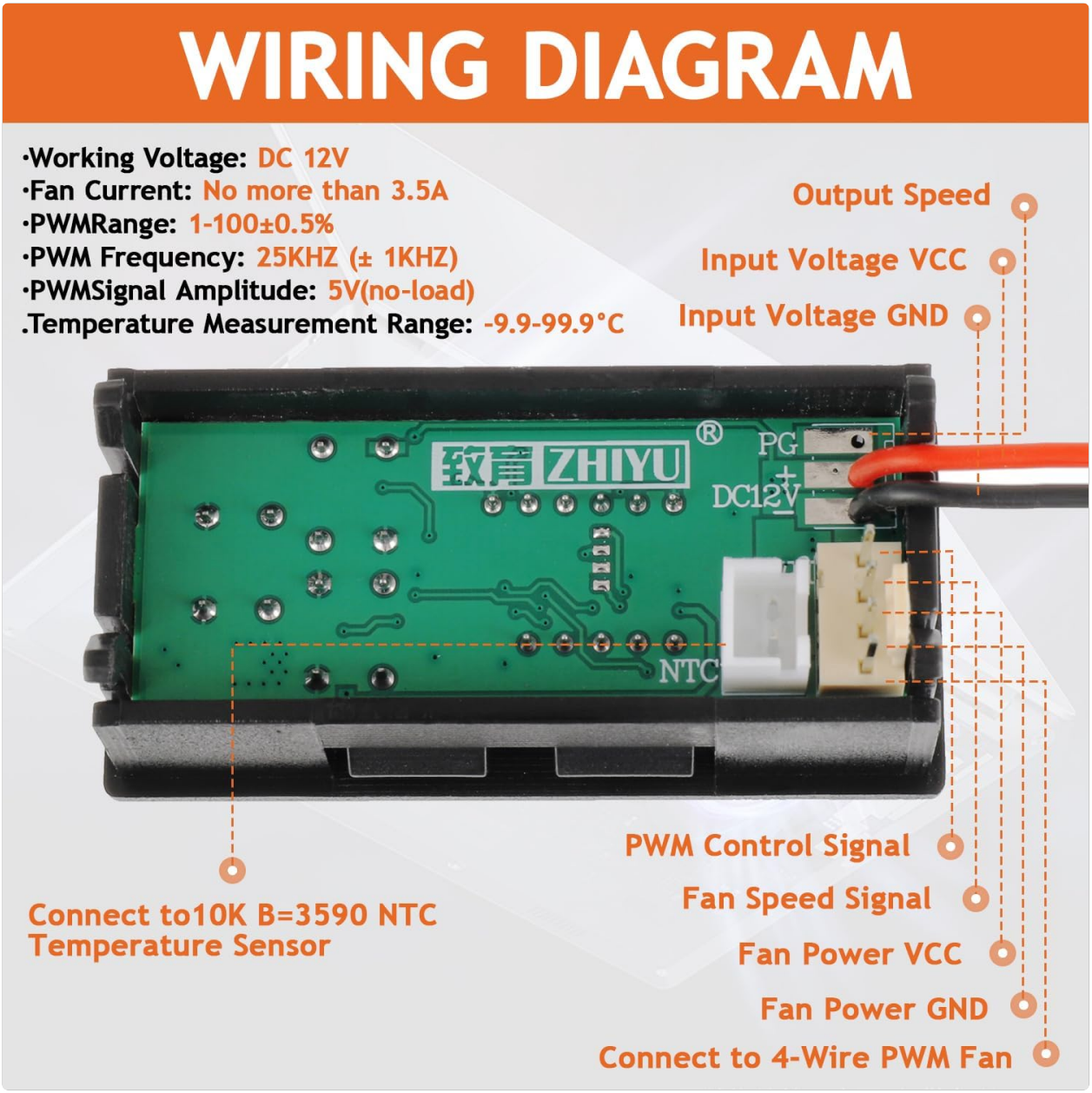


Image 3.1: Detailed wiring diagram illustrating how to connect the fan, temperature sensor, and power to the controller.

Video 3.1: This video demonstrates the connection process for the PWM fan controller, showing how to attach fans and power sources.

4. Operating Instructions

The controller offers both manual and automatic fan speed control modes. The digital display shows the current temperature in Celsius and fan speed in units of 100 RPM.

Button Descriptions:

- **'+' and '-' Buttons:** Used to switch the display while the unit is running, or to increase/decrease values

when setting parameters. Long press for continuous adjustment.

- **'OK' Button:** Has three primary functions:

  1. **Manual Speed Regulation:** In the running state, a short press enters the inherent output setting (manual speed regulation), with a range of 1-100 (%). Short press again to save and exit.
  2. **Temperature Parameter Setting:** In the running state, a long press enters the temperature parameter setting. Use '+' and '-' to modify parameters. Short press 'OK' to switch between setting items: acceleration temperature ('L**'), full speed temperature ('H**'), and turn-off temperature ('C**'). Short press 'OK' again to save and exit.
  3. **Function Settings (PWM Output Direction):** After power off, long press the 'OK' button and then turn on the power to enter function settings. Use '+' and '-' to modify the PWM output direction to forward ('P1') or reverse ('P-1'). Short press 'OK' to confirm and save to exit.

Control Modes:

- **Automatic Control Mode:** Long press the 'OK' button to enter temperature parameter settings. Once set, the device will automatically adjust fan speed based on the configured temperatures and real-time readings from the probe.
- **Manual Control Mode:** In the running state, short press the 'OK' button to enter manual speed adjustment. Use the '+' and '-' buttons to set the desired fan speed from 1% to 100%. Press 'OK' again to save and exit.



Image 4.1: Visual representation of the automatic and manual control modes, showing how settings are displayed.

Video 4.1: This video demonstrates the functional testing of a fan controller, including setting temperature parameters and observing fan response.

5. Maintenance

- **Regular Cleaning:** Keep the controller and fan free from dust and debris. Use a soft, dry cloth for cleaning. Avoid abrasive cleaners or solvents.
- **Probe Inspection:** Periodically check the temperature probe for any signs of damage or corrosion. Ensure it is securely placed for accurate readings.
- **Connection Check:** Verify that all electrical connections (power, fan, probe) are secure and free from loose wiring.
- **Environmental Conditions:** Ensure the controller is operated within its specified voltage and temperature ranges to prevent damage. Avoid exposure to excessive moisture or extreme temperatures.

6. Troubleshooting

- **No Power/Display Off:**
  - Check the power supply connection.
  - Ensure the power source is providing DC12V within the 8-16V range.
- **Fan Not Spinning/Incorrect Speed:**
  - Verify the fan is a 4-wire PWM fan and compatible with 12V operation.
  - Check the fan connection to the controller.
  - If in manual mode, ensure the speed percentage is set above 0%.
  - If in automatic mode, check the 'L**', 'H**', and 'C**' temperature settings.
  - Ensure the PWM output direction ('P1'/'P-1') is correctly configured in function settings.
- **Inaccurate Temperature Reading:**
  - Check the temperature probe connection.
  - Ensure the probe is correctly positioned to measure the desired temperature.
  - Inspect the probe for any physical damage.
- **Buttons Unresponsive:**
  - Ensure the display is not locked. Hold the 'OK' button for three seconds to lock/unlock the display.

7. Media Gallery

Product Images:



Image 7.1: Detailed view of the controller's LED display and the pluggable temperature probe.



Image 7.2: The controller's digital display showing current temperature and fan speed (x100 RPM).

Official Product Videos:

Video 7.1: A demonstration of the 12V Electronic Temperature Controller, showcasing its features and operation.

Video 7.2: This video provides an overview of the Fan Speed Controller, highlighting its functionality and ease of use.

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