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DONGKER AAP-ZP-GY17493

DONGKER PWM Driver Module User Manual

Model: AAP-ZP-GY17493

1. Product Overview

The DONGKER PWM Driver Module is a versatile 4-wire fan temperature controller designed for PC fans and alarm systems. It features dual independent temperature control channels, real-time temperature and speed display, and a stall alarm function. This module supports a wide operating voltage range and offers intuitive push-button settings for configuration.

- **Dual Independent Temperature Control:** Manages two separate fan channels based on temperature readings.
- **Temperature and Speed Display:** Provides real-time feedback on fan status and environmental conditions.
- **Stall Alarm:** Alerts users if a fan's speed drops below a critical threshold.
- **Wide Operating Voltage:** Compatible with DC 8V to 60V power sources.
- **Push-Button Configuration:** Easy adjustment of settings directly on the module.

2. Package Contents

Verify that all components are present in the package:

- DONGKER PWM Driver Module
- NTC Temperature Probes (typically two)
- Buzzer (for alarm function)



Image 2.1: DONGKER PWM Driver Module with temperature probes and buzzer.

3. Setup and Connections

Before connecting, ensure the power supply is disconnected. Refer to the diagram below for component identification and connection points.

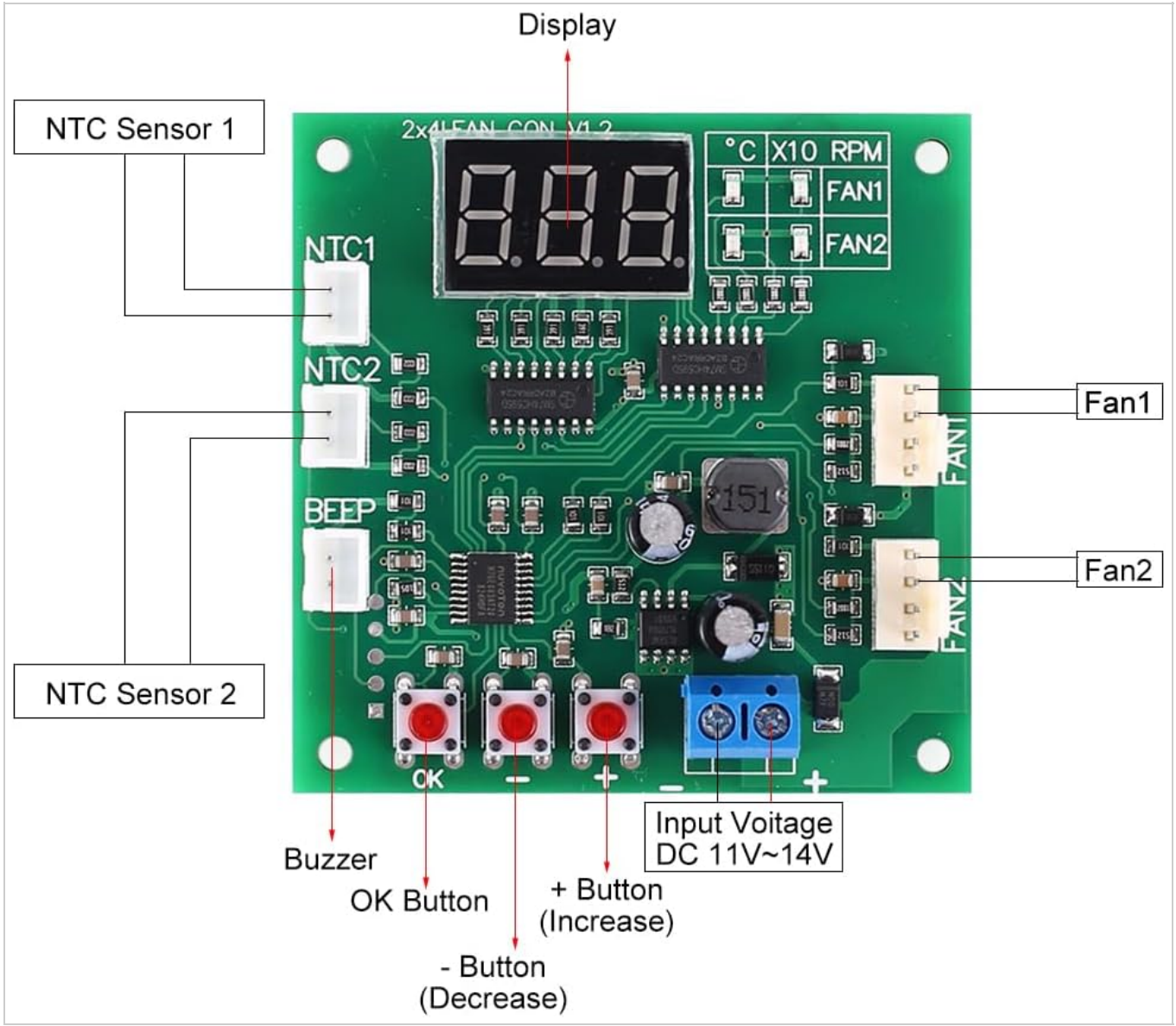


Image 3.1: Component layout and connection points on the DONGKER PWM Driver Module.

1. **Power Supply Connection:** Connect your DC power supply (8V to 60V) to the screw terminals labeled '+' and '-'.
    - **Important:** The working voltage supplied to the module must match the voltage requirements of the fans you are connecting. For example, if using 12V fans, supply 12V to the module. Supplying a higher voltage than the fan's rating will damage the fan.
2. **Fan Connections:** Connect your 4-wire PWM fans to the FAN1 and FAN2 headers.
    - The current drawn by each fan connected directly to the board's fan interface should not exceed 3A.
    - For fans requiring more than 3A, connect the fan's power cord directly to your main power supply, bypassing the module's fan power pins, and only connect the PWM signal and tachometer wires to the module.
3. **Temperature Probe Connections:** Connect the NTC temperature probes to the NTC1 and NTC2 headers. These probes are used for temperature measurement and control.
4. **Buzzer Connection:** Connect the provided buzzer to the BEEP header for audible alarms.

4. Operation and Settings

The module features a digital segment display and three push-buttons:**OK** (left), **-** (middle), and **+** (right).

4.1 Display Information

In normal operating mode, the display cycles through the following readings:

1. FAN1 Temperature (in °C)
2. FAN1 Speed (RPM, displayed as X10, e.g., 150 = 1500 RPM)
3. FAN2 Temperature (in °C)
4. FAN2 Speed (RPM, displayed as X10, e.g., 150 = 1500 RPM)

Indicator lights next to the 3-digit display will illuminate to show which value is currently being displayed. If both "°C" and "X10 RPM" indicators are lit for a fan, the module is in a setting mode.

4.2 Lowest Duty Cycle (Fan Speed) Setting

This setting defines the minimum fan speed (duty cycle percentage) when the measured temperature is at or below the lowest speed-ramp setting. The highest duty cycle is determined by the fan's maximum capability and cannot be changed.

1. To enter this setting mode, observe the "°C" and "X10 RPM" lights for FAN1 (upper two LEDs) illuminate simultaneously.
2. Use the **+** (right) and **-** (middle) buttons to adjust the desired duty cycle percentage for FAN1, ranging from 10% to 100%.
3. Short press the **OK** (left) button to confirm the setting for FAN1.
4. The display will then switch to FAN2. Use the **+** and **-** buttons to adjust the duty cycle for FAN2.
5. Short press the **OK** button to confirm the setting for FAN2. A long buzzer sound indicates that settings have been saved.

4.3 Temperature Zone and Stall Alarm Setting

This section allows you to configure the temperature thresholds for fan acceleration and full speed, as well as the stall alarm.

1. Long press the **OK** button until "L##" is displayed. "##" represents the current low ramp temperature setting (acceleration temperature).
2. Use the **+** and **-** buttons to adjust the low ramp temperature between 5°C and 94°C. Short press **OK** to confirm.
3. Next, "H##" will be displayed, representing the high temperature/max speed setting (full speed temperature).
4. Use the **+** and **-** buttons to adjust the high temperature between 10°C and 99°C. Short press **OK** to confirm.
5. The display will then show the fan stall/idle buzzer toggle: "BoF" (Buzzer Off) or "Bon" (Buzzer On). Use **+** or **-** to switch. Short press **OK** to confirm.
6. Repeat steps 1-5 for FAN2. A long buzzer sound indicates that all settings have been saved.

Important Notes for Temperature Settings:

- The full-speed temperature for a channel must be at least 5°C higher than its acceleration temperature. If you set a value that violates this condition, the controller will automatically adjust the other temperature value to maintain the 5°C difference. This automatic adjustment is one-way; manual adjustment is required to revert.
- If no operation is performed for 15 seconds during the setting process, the module will automatically exit the setting mode without saving any changes.

4.4 Channel 2 Display Shielding Setting

This setting allows you to enable or disable the display of Channel 2 data during normal operation. This only affects the display, not the control or parameter settings of Channel 2, which will continue to function normally.

1. Ensure the control board is powered off.
2. Press and hold the **OK** button, then power on the module while continuing to hold **OK**.
3. The display will show either "2oN" (Channel 2 display enabled) or "2oF" (Channel 2 display shielded). Release the **OK** button.
4. Use the **+** or **-** buttons to toggle between "2oN" and "2oF".
5. Short press the **OK** button again to exit and enter the normal working state.

4.5 Conventional Timing and Counter Mode Switching

This advanced setting allows switching between normal and reverse timing modes.

1. Ensure no fans are connected to the module and the controller is powered off.
2. Press and hold both the **+** and **-** buttons simultaneously. While holding them, power on the controller.
3. The controller will enter mode selection state. Release the buttons.
4. Click the **+** or **-** button to switch modes: "F-1" for normal mode, "F-2" for reverse timing mode.
5. Click the **OK** button to exit. The setting will be automatically saved upon exit.

5. Maintenance

The DONGKER PWM Driver Module requires minimal maintenance. To ensure optimal performance and longevity:

- Keep the module clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- Avoid exposing the module to excessive moisture or extreme temperatures outside its operating range.
- Periodically check all connections to ensure they are secure.

6. Troubleshooting

- **Fan Not Spinning or Damaged:**
  - Ensure the input voltage to the module matches the rated voltage of your fans.
  - Verify that the current draw of individual fans does not exceed 3A per pin. For higher current fans, connect their power directly to the main supply.
- **Stall Alarm Triggered:**
  - The alarm activates if a fan's speed drops below 375 RPM. Check for obstructions in the fan, fan malfunction, or insufficient power.
  - Ensure the fan is a 4-wire PWM fan and is correctly connected.
- **Settings Not Saving or Incorrect:**
  - Ensure you complete the setting process within 15 seconds of entering the setting mode.
  - When setting temperature zones, verify that the full-speed temperature is at least 5°C higher than the acceleration temperature. The module will auto-adjust if this condition is not met.
  - Confirm each setting step with a short press of the**OK** button.
- **Display Issues:**
  - If Channel 2 data is not displayed, check the "Channel 2 Display Shielding Setting" (Section 4.4) to ensure it is set to "2oN".

7. Specifications

Feature	Specification
Work Voltage	DC 8V~60V
Control Board Working Current	35mA (12V), 22mA (24V)
Control Output Range	10%~99.99%
Temperature Probe Specification	NTC 10KB=3950
Temperature Measurement Range	-9.9℃~99.9℃
Acceleration Temperature Range	5℃~94℃
Full Speed Temperature Range	10℃~99℃
Speed Measurement Range	10rpm~9990rpm
Stall Alarm Speed Threshold	<375rpm
Operating Temperature	-25℃~85℃
Operating Humidity	5%~95%RH
Dimensions (L*W*H)	64.5mm x 64.5mm x 15.5mm (2.54" x 2.54" x 0.61")
Item Weight	1.44 ounces (0.04 kg)
Display Type	Digital Segment Display
Model Number	AAP-ZP-GY17493
UPC	779207140511

Feature	Specification



Image 7.1: Physical dimensions of the DONGKER PWM Driver Module.

8. Warranty and Support

For warranty information or technical support, please contact DONGKER customer service through your purchase platform or the official DONGKER website. Please have your model number (AAP-ZP-GY17493) and purchase details ready when contacting support.

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