Youmile JK-YM-771

Youmile DC 12V 3A 4-Wire PC CPU Fan Speed Control Module

Model: JK-YM-771

1. Introduction

The Youmile DC 12V 3A 4-Wire PC CPU Fan Speed Control Module is designed to automatically regulate the speed of 4-wire PWM fans based on detected temperature. This module helps optimize cooling performance, reduce fan noise, and extend fan lifespan by ensuring fans operate only when necessary and at appropriate speeds. It features a digital display for real-time temperature and fan speed monitoring.

2. Product Overview

This module provides intelligent fan control for various applications, including PC CPU cooling, internal chassis modification, and external DIY cooling solutions. Its compact design and clear digital display make it easy to integrate and monitor.

Image 2.1: Front view of the Youmile Fan Speed Control Module, highlighting the digital display, four-wire fan connector, temperature probe input, and setting buttons.

Key Features:

- **Automatic Fan Speed Adjustment:** Dynamically adjusts fan speed based on real-time temperature readings from the NTC probe.
- **Digital LED Display:** Shows current temperature and fan speed (RPM/10) for easy monitoring.
- **Temperature Thresholds:** Configurable acceleration, full-speed, and shutdown temperature points.
- **PWM Control:** Specifically designed for 4-wire PWM fans, providing precise speed modulation.
- **Compact Design:** Small form factor for easy integration into various systems.

3. Package Contents

Please verify that all items are present in the package:

- 1 x Fan Speed Control Module (Model JK-YM-771)
- 1 x 10K B3950 NTC Temperature Probe

- 1 x 3-pin Cable
- 1 x DC Solder-Free Female Connector

4. Specifications

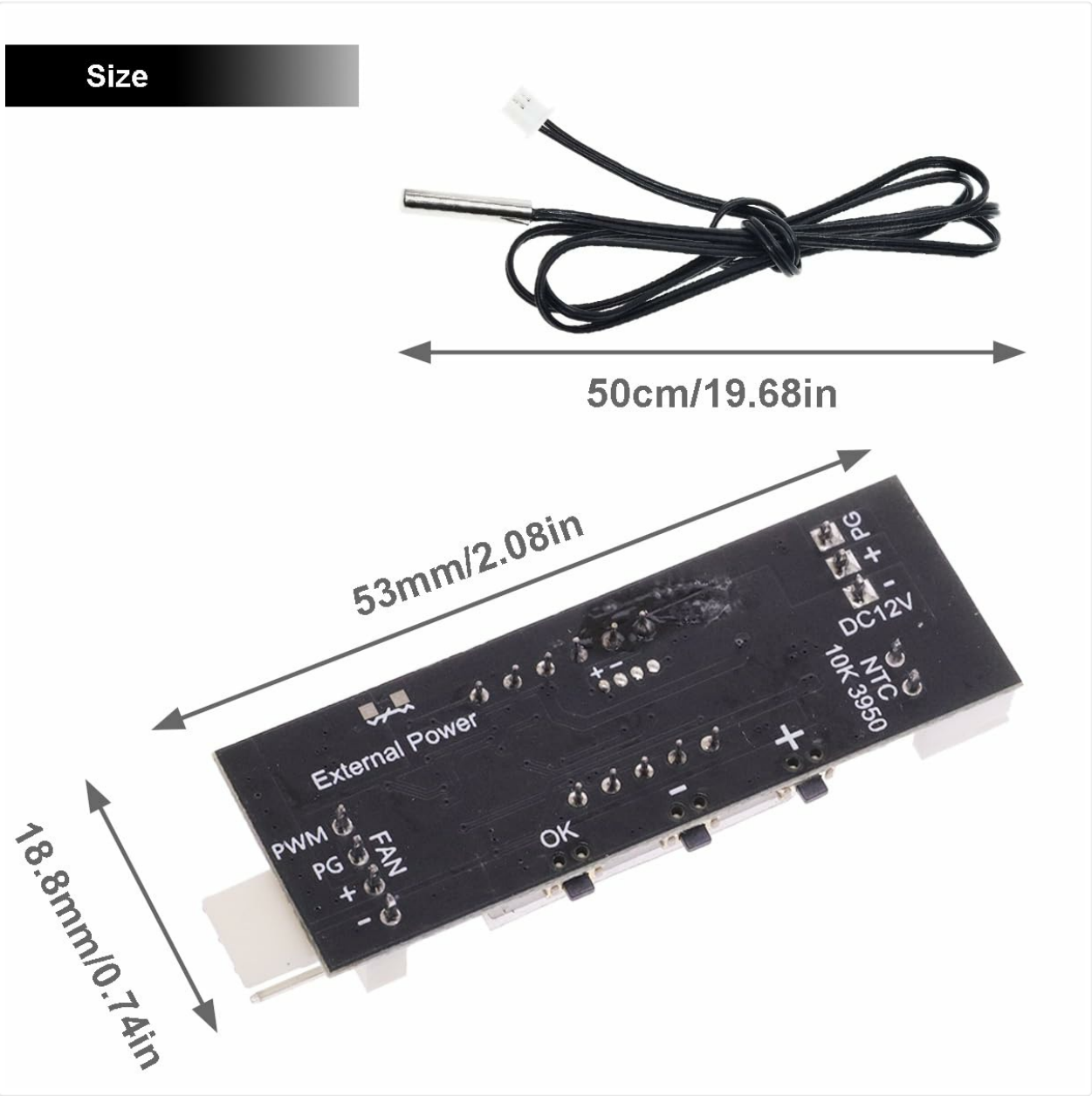

Image 4.1: Physical dimensions of the module (53mm x 18.8mm) and the 50cm temperature probe.

Parameter	Value
Model Number	JK-YM-771
Supply Voltage	DC 12V
Voltage Range	DC 8V ~ 16V
Circuit Dissipation	Less than 40mA
Fan Current	Less than or equal to 3.3A
PWM Range	1% ~ 100%

Parameter	Value
PWM Frequency	25KHZ (±1KHZ)
PWM Signal Amplitude	5V
Measured Temperature Range	-9.9°C ~ 99.9°C
Temperature Measurement Error	0~50°C less than 1.2°C; other ranges less than 2°C
Module Dimensions	53mm x 18.8mm (approx. 2.08in x 0.74in)
Probe Cable Length	50cm (approx. 19.68in)

5. Setup and Installation

Follow these steps to correctly install and connect your fan speed control module:

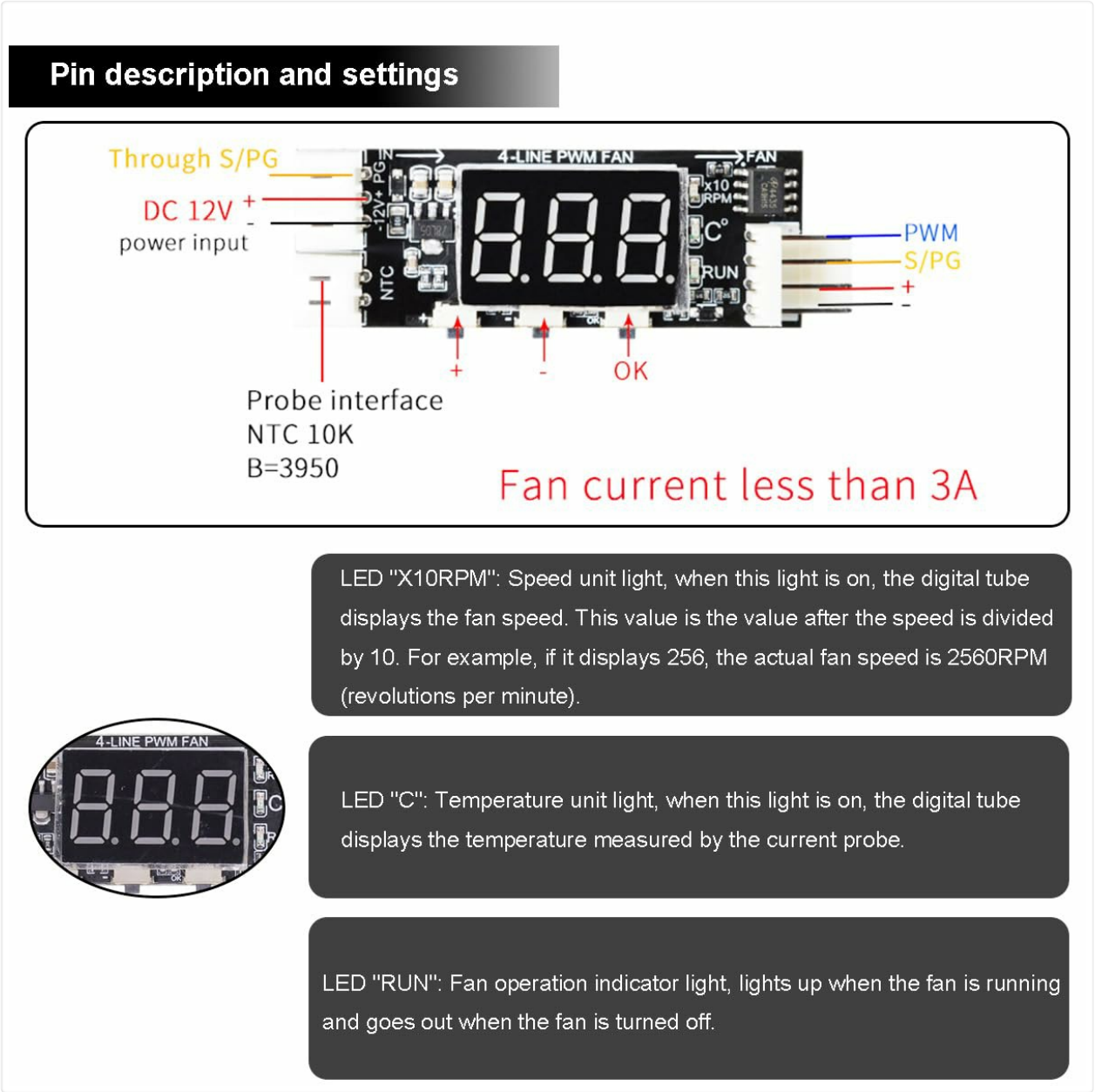

Image 5.1: Detailed pin description and wiring for power input, probe, and fan connection.

1. **Power Connection:** Connect a DC 12V power supply to the module's power input terminals. Ensure

correct polarity (+ and -). The module supports a voltage range of DC 8V to 16V.

2. **Fan Connection:** Connect your 4-wire PWM fan to the designated fan connector on the module. **Important: This module only supports 4-wire PWM fans. It is not compatible with 2-wire or 3-wire fans.** The fan current should not exceed 3.3A.
3. **Temperature Probe Connection:** Connect the NTC 10K B3950 temperature probe to the 'NTC' interface. Position the probe in the area where temperature monitoring is required (e.g., near a CPU heatsink, inside a chassis).
4. **Initial Power On:** Once all connections are secure, apply power. The digital display will light up, showing either temperature or fan speed.

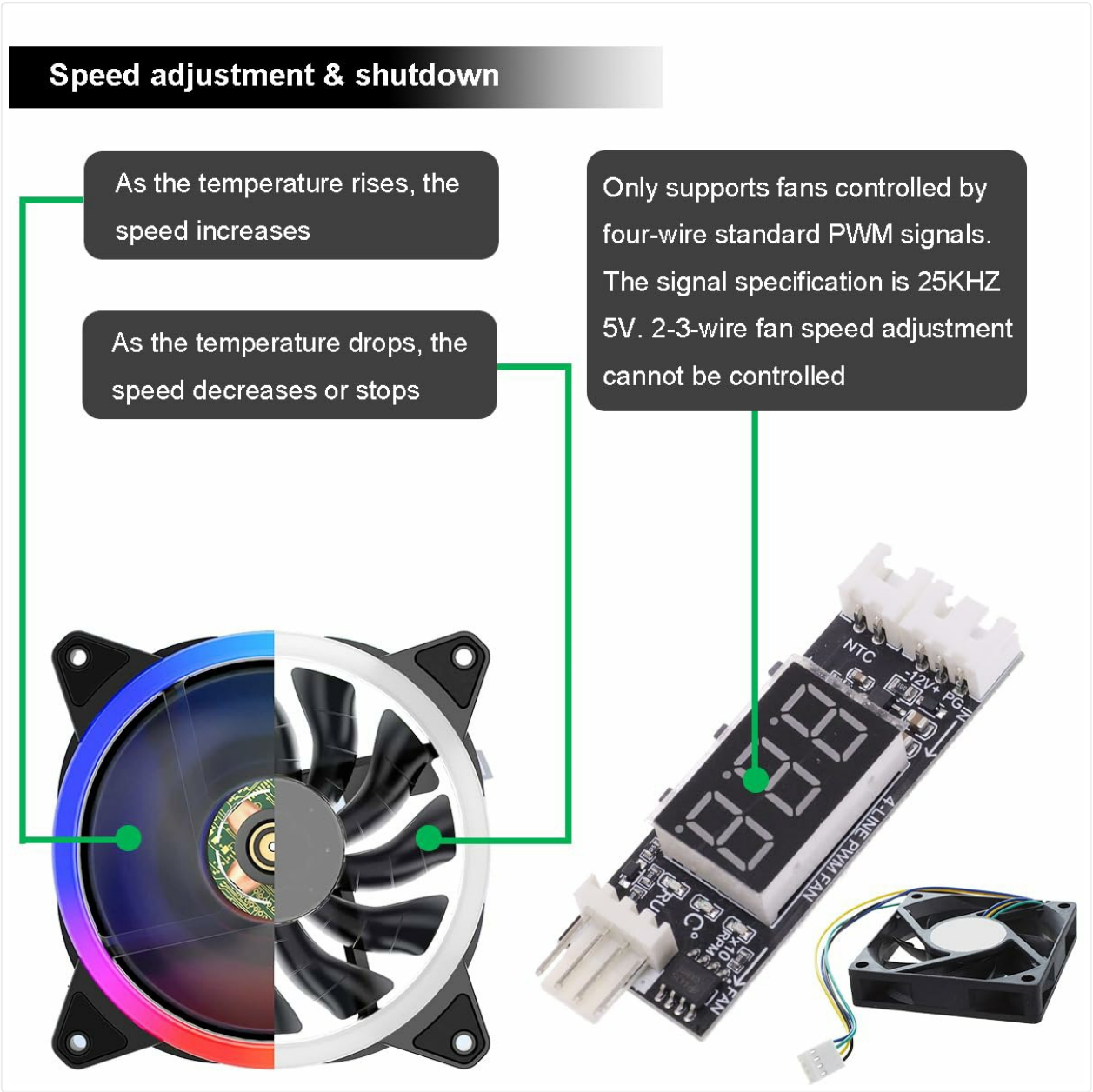

Image 5.2: Visual representation of fan speed increasing with temperature and the module's exclusive support for 4-wire PWM fans.

6. Operating Instructions

The module features a digital display and three buttons for operation and configuration.

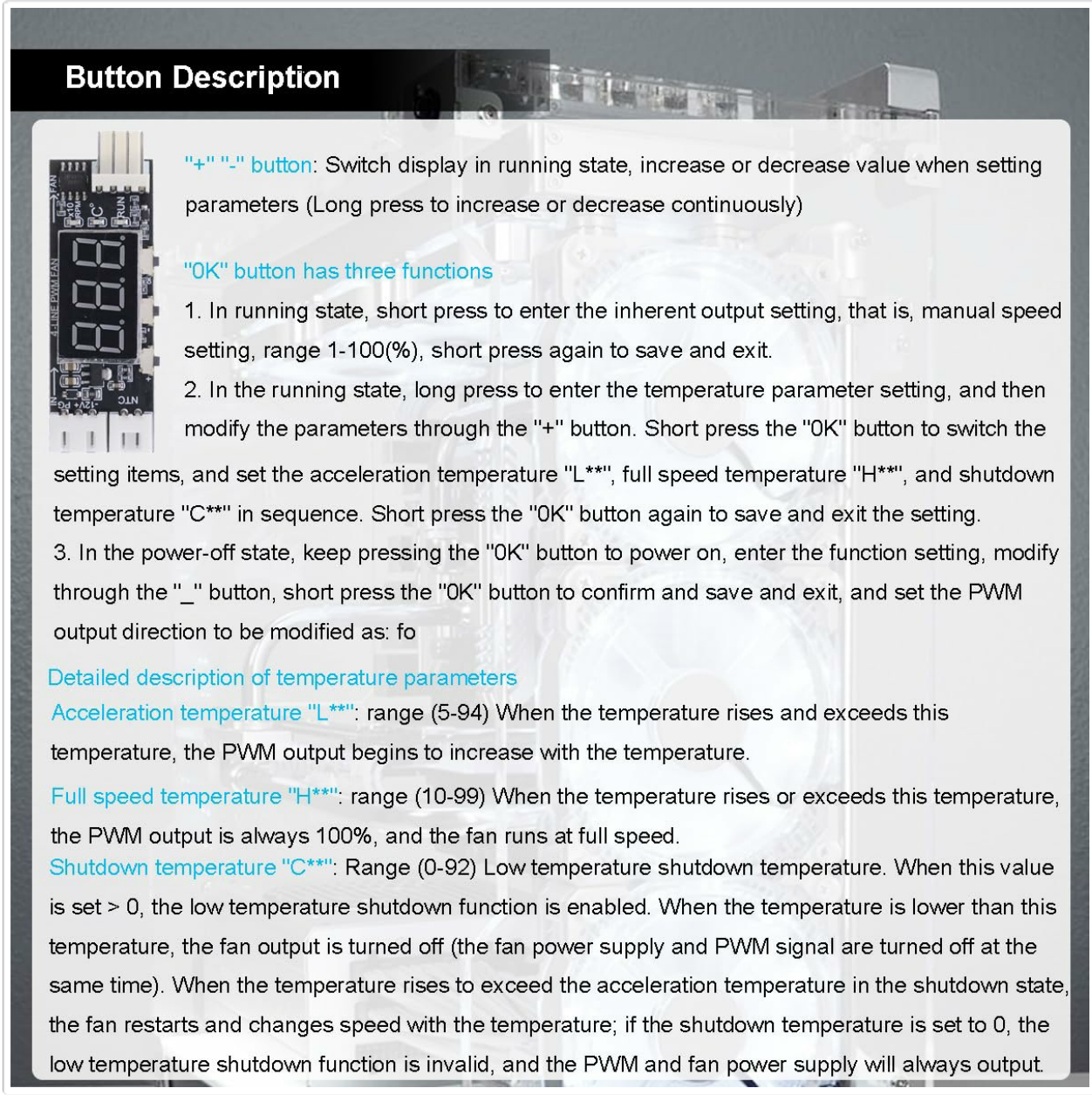

Image 6.1: Overview of button functions and detailed temperature parameter descriptions.

6.1 Display Modes

- **Red LED:** Indicates the display shows the current temperature (°C).
- **Blue LED:** Indicates the display shows the fan speed (RPM divided by 10). For example, '150' means 1500 RPM.
- **Green LED:** Indicates the fan is currently activated and running. If off, the fan is powered off.

6.2 Button Functions

- **"+" and "-" Buttons:**
  - **When running:** Tap to switch the display mode between temperature (°C) and fan speed (RPM/10).
  - **When setting parameters:** Tap to increase or decrease values. Hold to adjust continuously.
- **"OK" Button:**
  - **While running (short press):** Enter the minimum speed setting (range: 1-100%). This value determines the fan speed at the 'L' (low temperature) setting. Press 'OK' again to save and exit.

- **While running (long press):** Enter temperature settings. Use "+" and "-" to adjust values. Short press "OK" to cycle through the settings: 'L' (Low temperature), 'H' (High temperature), 'C' (Shutdown temperature), 'd' (Duty Cycle / PWM output direction). Press 'OK' again to save and exit.
- **While powered off (hold "OK" to power on):** Enter function settings. Use "-" to change settings. Short press "OK" to confirm and save.

6.3 Temperature Settings

These parameters are configured by long-pressing the "OK" button while the unit is running.

- **L (Acceleration Temperature):**
  - Range: 5°C – 94°C
  - When the detected temperature exceeds this value, the fan begins to ramp up its speed.
- **H (Full-Speed Temperature):**
  - Range: 10°C – 99°C
  - When the detected temperature exceeds this value, the fan runs at full speed (100% PWM duty cycle).
- **C (Shutdown Temperature):**
  - Range: 0°C – 92°C
  - If set above 0°C, the fan will shut off completely when the temperature drops below this value. If the temperature then rises above the 'L' (Acceleration Temperature) while shut down, the fan will restart.
  - If set to 0°C, the shutdown function is disabled, and the fan will always receive power (never completely turn off based on temperature).

Note on Temperature Differences: *The difference between 'L' and 'H' temperatures cannot be less than 5°C. The difference between 'C' and 'L' temperatures cannot be less than 2°C.*

6.4 d (Duty Cycle / PWM Output Direction Setting)

- Range: -9 to +9
- This setting adjusts the direction or polarity of the PWM signal.
- **d = 0:** Standard PWM output (forward direction). This is the default and recommended setting for most fans.
- **d = 1 to 9:** Maintains forward direction; may fine-tune signal timing for specific fan types.
- **d = -1 to -9:** Inverts the PWM signal (reverse direction). Most fans do not support reverse rotation. Use 'd = 0' or positive values for compatibility with standard PWM fans.

7. Applications

The Youmile Fan Speed Control Module is versatile and can be used in various scenarios requiring intelligent fan control:

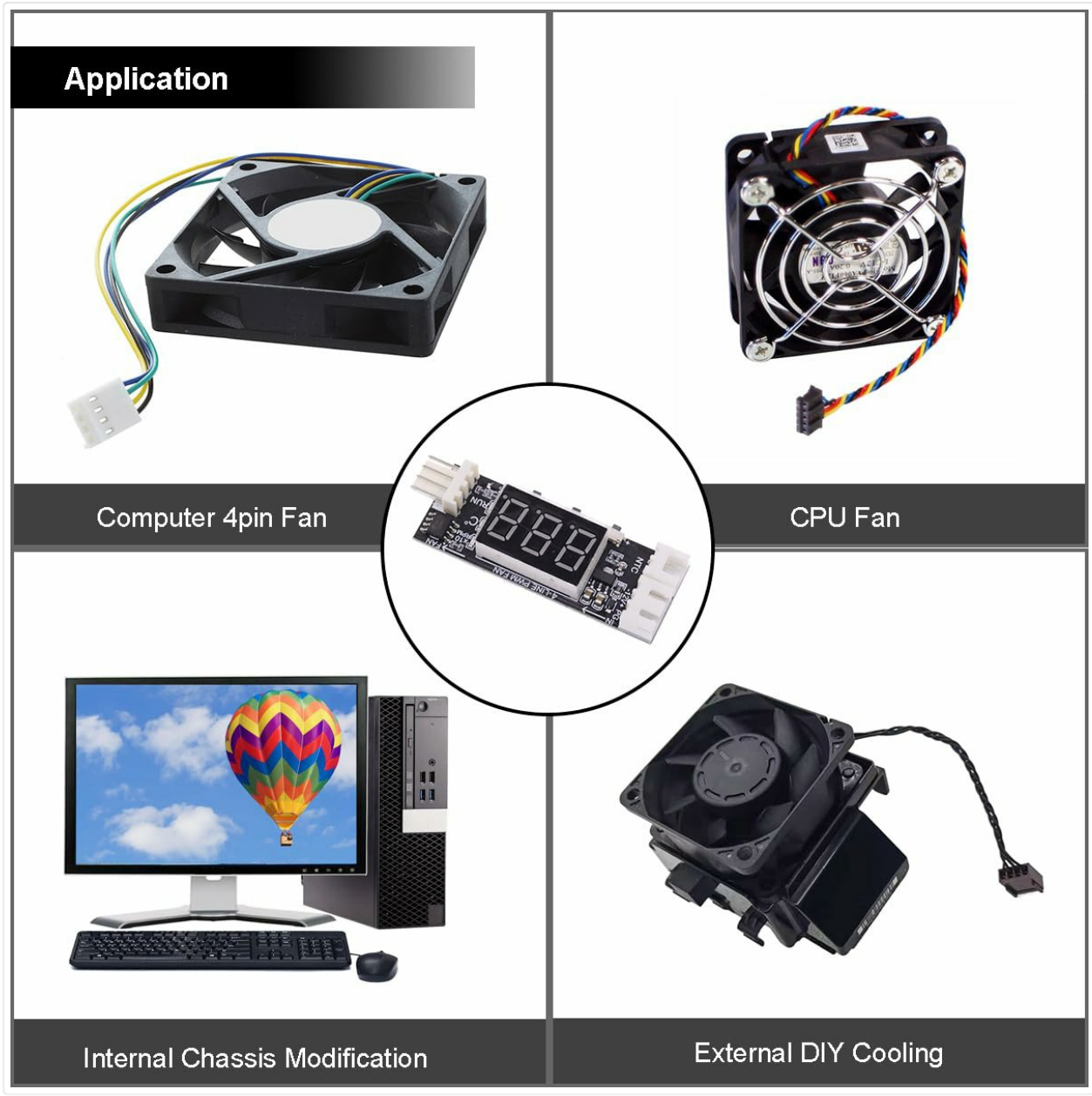

Image 7.1: Examples of the module's application with computer 4-pin fans, CPU fans, internal chassis modification, and external DIY cooling setups.

- **PC CPU Cooling:** Integrate with CPU heatsink fans for dynamic temperature management.
- **Computer Chassis Fans:** Control case fans to maintain optimal internal temperatures and reduce system noise.
- **Internal Chassis Modification:** For custom PC builds or modifications where precise fan control is desired.
- **External DIY Cooling:** Suitable for various electronic projects requiring temperature-controlled ventilation.

8. Troubleshooting

- **Fan not spinning or not responding:**
  - Ensure the fan is a 4-wire PWM type. This module is not compatible with 2-wire or 3-wire fans.
  - Check all wiring connections for proper seating and polarity.
  - Verify the power supply is within the DC 8V-16V range and provides sufficient current (fan current ≤ 3.3A).

    - Check the 'C' (Shutdown Temperature) setting. If the current temperature is below 'C' and 'C' is set above 0, the fan will be off.

- **Incorrect temperature reading:**
    - Ensure the NTC temperature probe is securely connected to the module.
    - Verify the probe is correctly positioned to measure the desired temperature.
    - Note the specified temperature measurement error (0~50°C less than 1.2°C; other ranges less than 2°C).
- **Settings not saving after power off:**
    - While the module is designed to retain settings, in rare cases or with unstable power, settings might reset. Re-enter your desired parameters if this occurs.
- **Fan running at full speed constantly:**
    - Check the 'H' (Full-Speed Temperature) setting. If the measured temperature is above 'H', the fan will run at 100% speed.
    - Ensure the temperature probe is functioning correctly and not reporting an artificially high temperature.

9. Maintenance

- **Cleaning:** Keep the module free from dust and debris. Use a soft, dry cloth for cleaning. Avoid liquid cleaners.
- **Connections:** Periodically check all wiring connections to ensure they remain secure.
- **Environment:** Operate the module within its specified temperature and humidity ranges. Avoid exposure to extreme conditions or moisture.

10. Warranty and Support

For warranty information or technical support, please refer to the retailer or manufacturer's official website. Keep your purchase receipt for any warranty claims.