UCTRONICS U627803

UCTRONICS PoE Hat User Manual

Model: U627803

1. INTRODUCTION

The UCTRONICS PoE Hat is a Power over Ethernet (PoE) module designed to provide power to your Raspberry Pi 5, Raspberry Pi 4B, or Raspberry Pi 3B+ directly through an Ethernet cable. This eliminates the need for a separate power supply, simplifying cable management and deployment in various environments. It also includes an integrated cooling solution to maintain optimal operating temperatures for your Raspberry Pi.

2. FEATURES

- **Power Budget:** IEEE 802.3af/at compliant, providing a maximum output power of 5V 4.5A. Requires a Power Sourcing Equipment (PSE) device port to deliver at least 45-57V, 25W of power output.
- **Isolated Power Supply:** Features a fully isolated switched-mode power supply (SMPS) for stable and safe operation.
- **Efficient Heat Dissipation:** Equipped with a brushless active cooling fan, three pre-installed thermal tapes, and four heatsinks (one for the hat board and three for the Raspberry Pi) to ensure effective thermal management.
- **Compact Size:** Designed to be compact, occupying only 6 pins of the 40-pin GPIO header and measuring 65x58mm.
- **Pre-assembled:** The PoE hat comes pre-assembled for easy setup with Raspberry Pi 5/4B/3B+. It also supports mounting on most UCTRONICS rackmounts, such as RM0013/RM0004.

3. WHAT'S IN THE BOX

Please verify that all the following components are included in your package:

- 1 x UCTRONICS PoE Hat (pre-assembled with fan and heatsink)
- 3 x Additional Heatsinks for Raspberry Pi
- 4 x Short Brass Standoffs
- 4 x Long Brass Standoffs
- 4 x M2.5*14 Screws
- 2 x Thermal Pads (pre-installed on the hat)
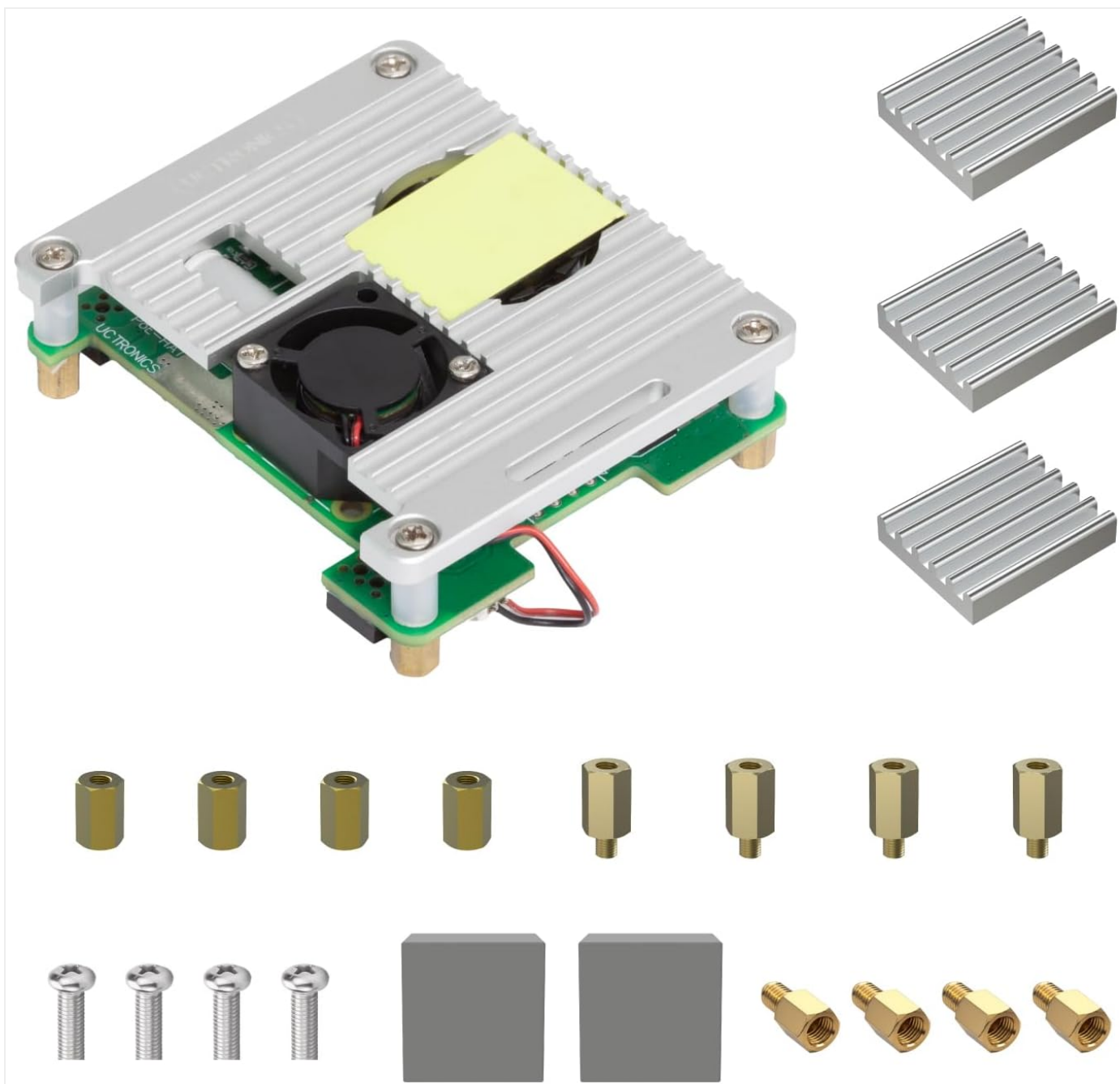
This image displays all components included with the UCTRONICS PoE Hat: the pre-assembled PoE HAT board with an integrated fan and heatsink, three additional heatsinks for the Raspberry Pi, various standoffs (short and long), mounting screws, and thermal pads.
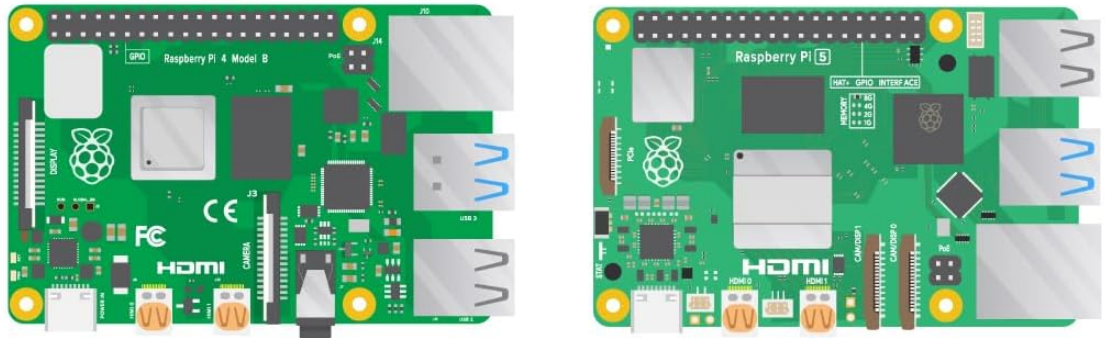
4. SETUP AND INSTALLATION

Follow these steps to properly install the UCTRONICS PoE Hat onto your Raspberry Pi.

4.1 Compatibility

The UCTRONICS PoE Hat is compatible with Raspberry Pi 5, Raspberry Pi 4B, and Raspberry Pi 3B+ models.

This image illustrates the compatibility of the PoE Hat with Raspberry Pi 3B+, 4B, and 5 models. It also shows the PoE Hat installed on a Raspberry Pi within a UCTRONICS rackmount, demonstrating its compact integration.

4.2 Installation Steps

1. **Prepare Raspberry Pi:** Ensure your Raspberry Pi is powered off and disconnected from any power source.
2. **Apply Thermal Tapes/Heatsinks:** The PoE Hat comes with pre-installed thermal tapes. For the Raspberry Pi, apply the additional heatsinks to the main chips (CPU, RAM, etc.) as appropriate.
3. **Attach Standoffs:** Screw the appropriate standoffs (short or long, depending on your setup) into the mounting holes of the Raspberry Pi.
4. **Mount PoE Hat:** Carefully align the 40-pin GPIO header of the PoE Hat with the GPIO pins on your Raspberry Pi. Gently press down until the hat is securely seated.
5. **Secure with Screws:** Use the provided screws to secure the PoE Hat to the standoffs, ensuring a firm connection.

6. **Connect Fan:** Ensure the fan connector from the PoE Hat is properly plugged into the designated fan header on the Raspberry Pi (if applicable for your Pi model).
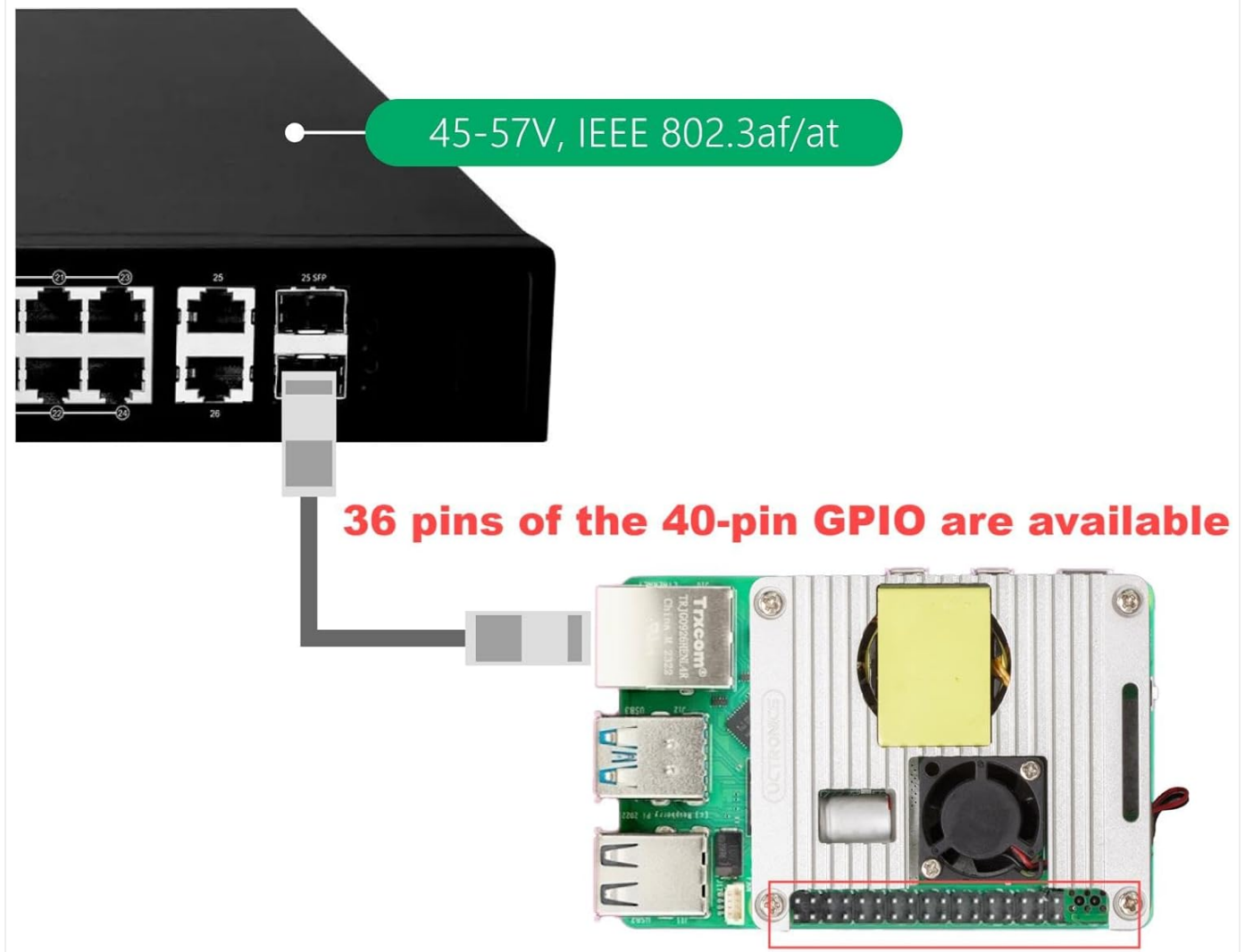

An exploded diagram illustrating the assembly process of the PoE Hat onto a Raspberry Pi. It clearly shows the placement of M2.5*14 screws, M3*5-9 nylon standoffs, the heatsink, 4pcs M2.5*4 screws, thermal tapes, and M2.5*8 standoffs. A note advises replacing preinstalled M2.5*8 standoffs with shorter ones for rack mounting.

5. OPERATING INSTRUCTIONS

Once the PoE Hat is installed, operating your Raspberry Pi with PoE is straightforward.

5.1 Powering the Raspberry Pi

Connect an Ethernet cable from a PoE-enabled network switch (IEEE 802.3af/at compliant) to the Ethernet port on your Raspberry Pi. The PoE Hat will draw power from the Ethernet cable and convert it to the necessary 5V 4.5A to power the Raspberry Pi.

M2.5*14 Screw

M3*5-9 Nylon standoff

4pcs M2.5*4

thermal tapes
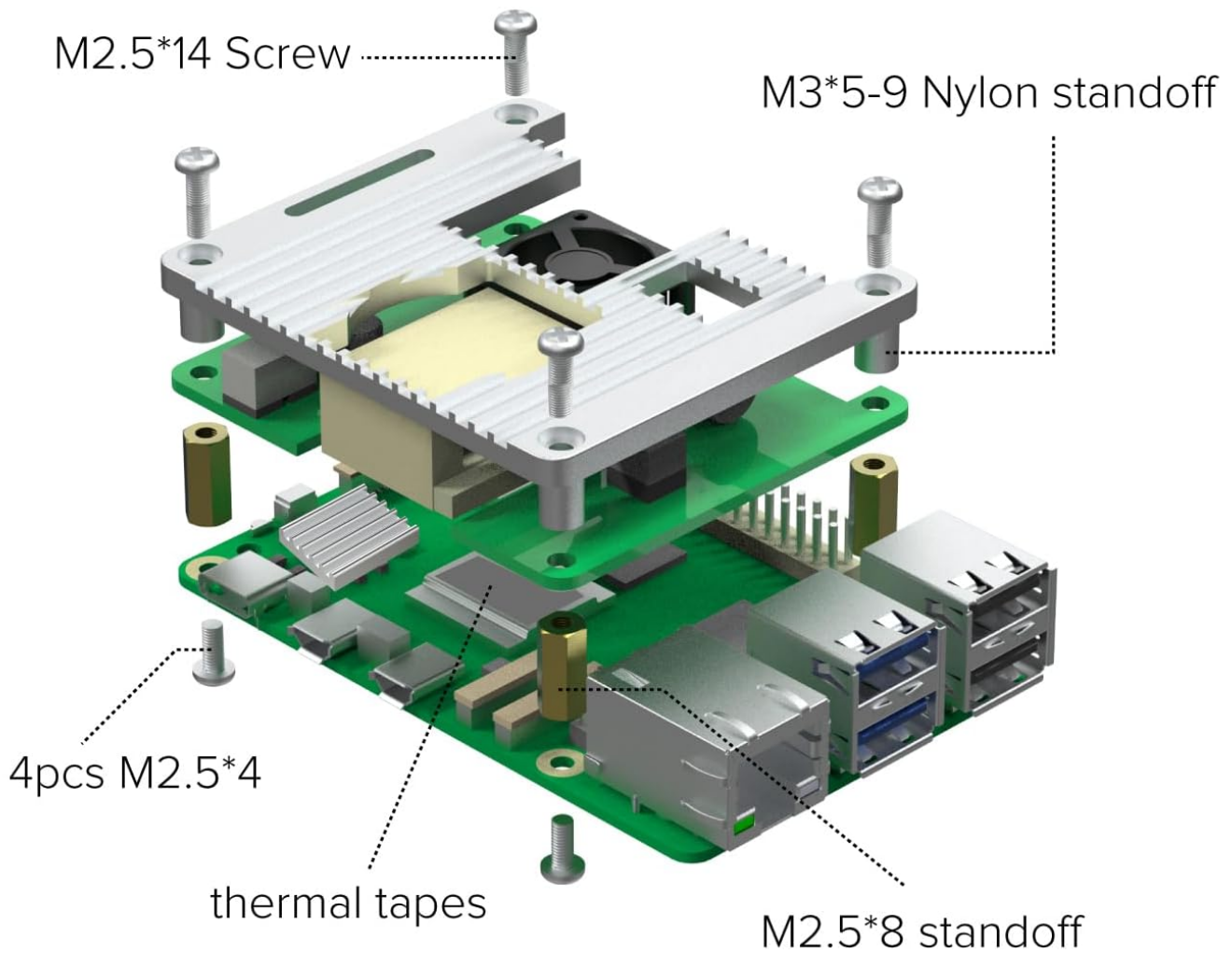
M2.5*8 standoff

Note: Preinstalled M2.5*8 standoffs, when need to mount it in a rack, replace them with the shorter standoffs.

This diagram demonstrates how to connect the Raspberry Pi with the UCTRONICS PoE Hat to a PoE-enabled network switch. It highlights that the PoE Hat uses only 4 pins, leaving 36 pins of the 40-pin GPIO header available for other uses.

5.2 Cooling Fan Operation

The onboard cooling fan will automatically activate when the Raspberry Pi's temperature reaches a certain threshold, ensuring efficient heat dissipation and stable performance.
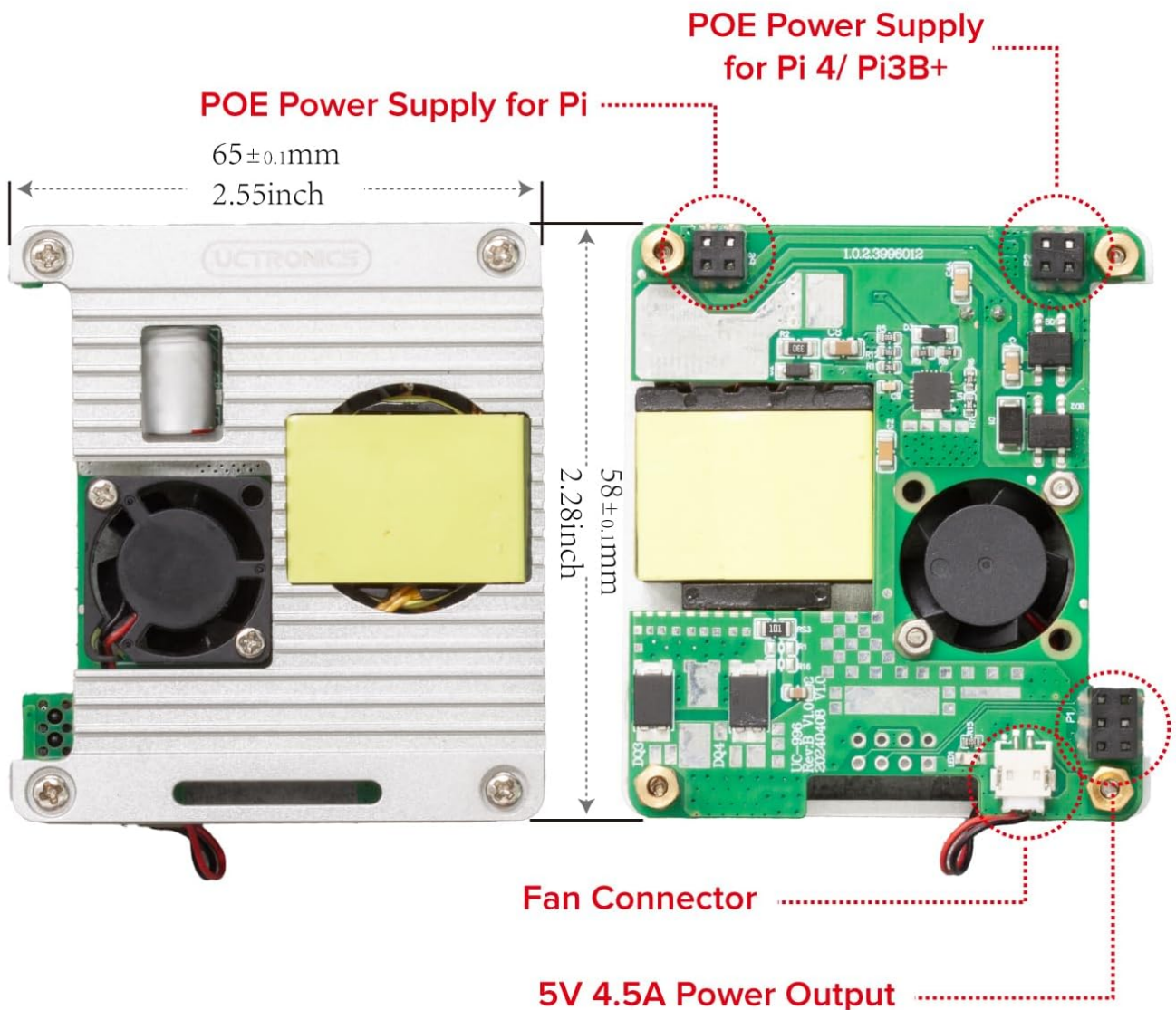
A detailed top-down view of the PoE Hat, highlighting its dimensions (65x58mm), the specific PoE power supply input points for Raspberry Pi 4/Pi3B+, the fan connector, and the 5V 4.5A power output.

6. MAINTENANCE

To ensure the longevity and optimal performance of your UCTRONICS PoE Hat, consider the following maintenance tips:

- **Dust Removal:** Periodically inspect the fan and heatsinks for dust accumulation. Use compressed air or a soft brush to gently remove any dust, ensuring proper airflow and cooling efficiency.
- **Connection Check:** Occasionally check that all connections, especially the GPIO pins and fan connector, are secure.
- **Environmental Conditions:** Operate the device in a clean, dry environment within its specified temperature range to prevent damage.

7. TROUBLESHOOTING

If you encounter issues with your UCTRONICS PoE Hat, consider the following common troubleshooting steps:

- **No Power to Raspberry Pi:**

  - Ensure the Ethernet cable is securely connected to both the PoE switch and the Raspberry Pi.
  - Verify that your network switch is PoE-enabled (IEEE 802.3af/at compliant) and providing sufficient power (45-57V, 25W minimum).
  - Check that the PoE Hat is correctly seated on the Raspberry Pi's GPIO pins.

- **Fan Not Spinning:**

  - Confirm the fan cable is properly connected to the Raspberry Pi's fan header.
  - The fan may only spin when the Raspberry Pi reaches a certain temperature threshold. Monitor the Pi's temperature to see if it activates under load.
  - Check for any obstructions preventing the fan blades from spinning.

- **Overheating Issues:**

  - Ensure all heatsinks are properly attached to the Raspberry Pi's chips and the PoE Hat.
  - Verify that the thermal tapes are making good contact.
  - Ensure adequate airflow around the Raspberry Pi and PoE Hat.

8. SPECIFICATIONS

Property	Value
Brand	UCTRONICS
Model Name	U627803
Connectivity Technology	Ethernet
Power Input	45-57V (IEEE 802.3af/at)
Power Output	5V 4.5A
Network Standard	IEEE 802.3af/at
Dimensions	65 x 58 mm (2.55 x 2.28 inches)
Item Weight	3.52 ounces
Operating System Compatibility	Linux
Included Components	Raspberry PI 5 PoE hat, Heatsinks

Power Input	45-57V
Powe Output	5V 4.5A
Network Standard	IEEE 802.3af/at
Dimensions	65*58mm
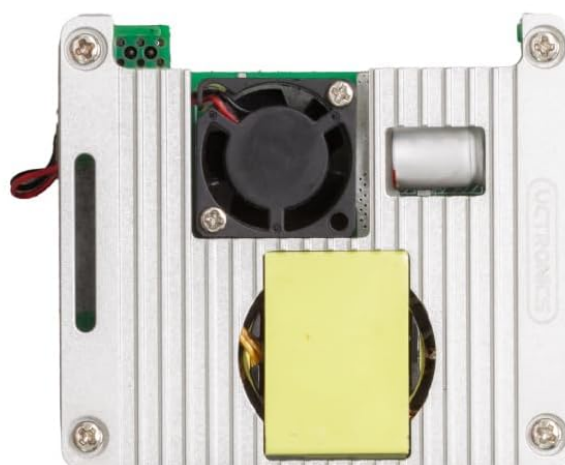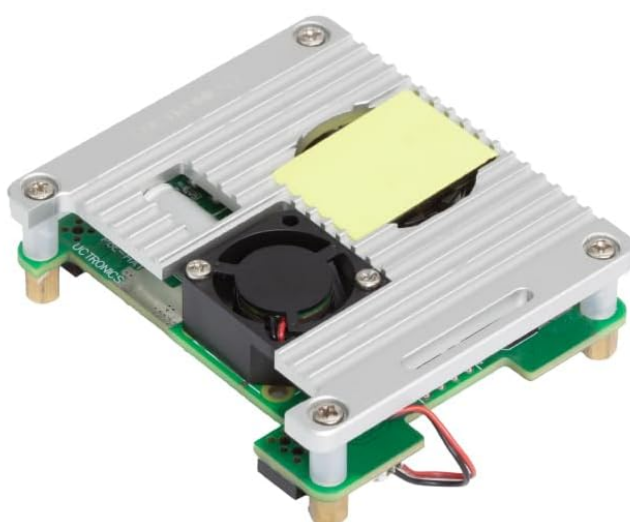
This image presents a table summarizing key specifications of the PoE Hat: Power Input (45-57V), Power Output (5V 4.5A), Network Standard (IEEE 802.3af/at), and Dimensions (65*58mm).
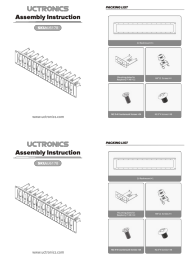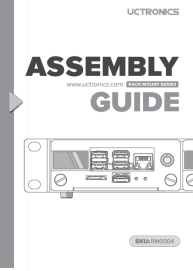
9. SUPPORT

For technical support, warranty information, or further inquiries regarding your UCTRONICS PoE Hat, please visit the official UCTRONICS website or contact their customer service directly. Refer to your purchase documentation for specific warranty terms and conditions.

UCTRONICS Official Website: www.uctronics.com

Related Documents

	[UCTRONICS Raspberry Pi Cluster Assembly Guide - SKU U6169](#) Detailed assembly guide for the UCTRONICS Raspberry Pi Cluster (SKU: U6169). Includes package contents, exploded view, step-by-step assembly instructions, wiring information, and fan specifications.
	[UCTRONICS U6178 2U Rackmount Assembly Instructions for Raspberry Pi 4B](#) Step-by-step assembly guide for the UCTRONICS U6178 19-inch 2U server rackmount designed for Raspberry Pi 4B. Includes packing list and detailed instructions for mounting Raspberry Pi boards.
	[UCTRONICS RM0004 Pi Rack Pro Assembly Guide | Rack Mount Enclosure for Raspberry Pi](#) This document provides a comprehensive assembly guide for the UCTRONICS RM0004 Pi Rack Pro, a 19" 1U rack mount enclosure for Raspberry Pi 4B. It details the package contents, step-by-step installation instructions, and configuration for the 0.96" color OLED display and secure shutdown features. Supports up to four 2.5" SSDs.
	[UCTRONICS U6260 Raspberry Pi Cluster Enclosure Assembly Guide](#) Detailed assembly guide for the UCTRONICS U6260 Raspberry Pi cluster enclosure, covering package contents and step-by-step installation instructions.