

ARCTIC ACFRE00189A

ARCTIC Liquid Freezer III Pro 420 A-RGB (White)

Model: ACFRE00189A - AIO CPU Cooler Instruction Manual

INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of your ARCTIC Liquid Freezer III Pro 420 A-RGB (White) All-in-One (AIO) CPU liquid cooler. This high-performance cooling solution is designed to efficiently dissipate heat from your CPU, ensuring stable and optimal system performance. Please read this manual thoroughly before proceeding with installation to ensure correct setup and to prevent potential damage.



Image: The ARCTIC Liquid Freezer III Pro 420 A-RGB (White) AIO CPU Cooler, showcasing the white radiator, three 140mm A-RGB fans, and the pump block with integrated VRM fan and A-RGB lighting.

Safety Information

- Always disconnect power from your computer before installing or performing maintenance on any internal components.
- Handle components with care to avoid damage. Avoid touching electrical contacts.
- Wear anti-static gloves or use an anti-static wrist strap to prevent electrostatic discharge (ESD) damage to sensitive components.
- Ensure proper ventilation in your workspace.
- Keep small parts and packaging materials out of reach of children.
- Do not attempt to open or modify the sealed liquid cooling loop. Doing so will void the warranty and may cause leakage.

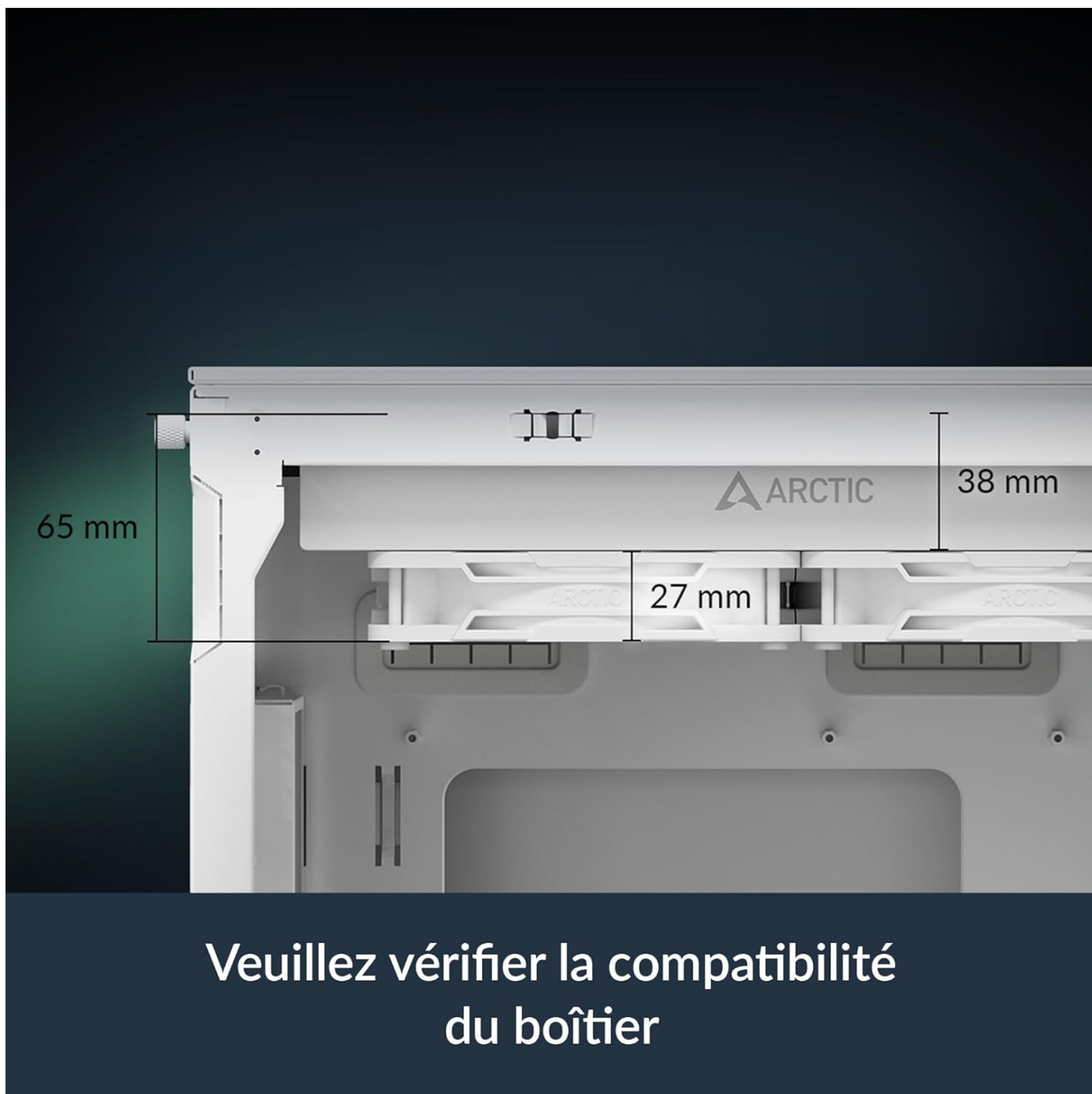
PACKAGE CONTENTS

Verify that all components are present in the package:

- Liquid Freezer III 420 A-RGB - white (Pre-assembled radiator with fans and pump block)
- Mounting hardware for Intel LGA1851/1700 and AMD AM5/AM4
- ARCTIC MX-6 Thermal Paste (pre-applied or in a tube)
- User Manual (this document)

SPECIFICATIONS

Feature	Detail
Product Dimensions	18.03 x 5.43 x 2.68 inches (458 x 138 x 68 mm)
Weight	5.2 Pounds (2.36 kg)
Item Model Number	ACFRE00189A
Brand	ARCTIC
Power Connector Type	4-Pin PWM
Voltage	12 Volts
Wattage	4.2 W
Cooling Method	Water
Compatible Devices	Desktop CPUs (AMD AM5/AM4, Intel LGA1851/1700)
Noise Level (Pump/VRM Fan)	1 Sone
Material	Plastic (housing), Aluminum (radiator)
Radiator Thickness	38 mm
Fan Thickness	27 mm



**Veillez vérifier la compatibilité
du boîtier**

Image: Diagram illustrating the radiator thickness (38mm) and fan thickness (27mm), totaling 65mm, emphasizing the need to check case compatibility for installation.

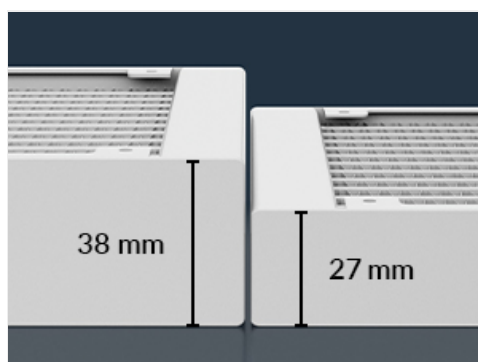


Image: A visual comparison showing the 38mm thick radiator of the Liquid Freezer III Pro next to a standard 27mm radiator, highlighting the increased thickness.

Fan Specifications (ARCTIC P14 Pro)

- **Fan Speed:** 400 - 2500 RPM (PWM controlled)
- **Static Pressure:** 5.2 mm H₂O
- **Airflow:** 110 CFM | 186 m³/h



Image: An infographic detailing the specifications of the ARCTIC P14 Pro fan, including fan speed range (400-2500 RPM), static pressure (5.2 mm H₂O), and airflow (110 CFM | 186 m³/h).

SETUP AND INSTALLATION

1. Pre-Installation Checks

1. **Case Compatibility:** Ensure your PC case has sufficient clearance for a 420mm radiator (18.03 inches / 458mm length) and its combined thickness with fans (65mm).
2. **Motherboard Compatibility:** Verify your motherboard supports the intended CPU socket (AMD AM5/AM4 or Intel LGA1851/1700).

3. **Power Connectors:** Confirm your motherboard has available 4-pin PWM headers for the pump and fan control, and a 3-pin 5V Addressable RGB header for lighting.

2. CPU Preparation and Thermal Paste Application

1. Clean the CPU surface thoroughly with isopropyl alcohol to remove any old thermal paste or residue.
2. Apply the included ARCTIC MX-6 thermal paste to the center of your CPU. A pea-sized or X-pattern application is generally recommended for optimal spread when the cold plate is mounted.

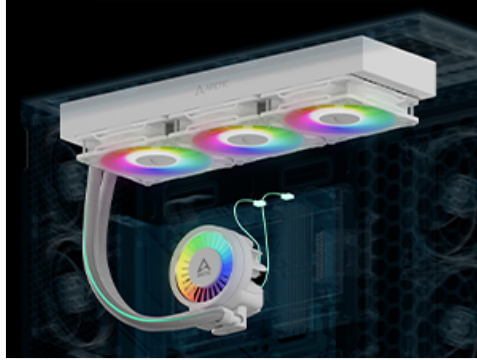


Image: A CPU with thermal paste applied in an 'X' pattern, ready for the cooler's cold plate to be mounted.

3. Mounting the Pump Block

The Liquid Freezer III Pro features native offset mounting for both Intel and AMD platforms to align the cold plate with the CPU's hotspot for improved heat transfer.

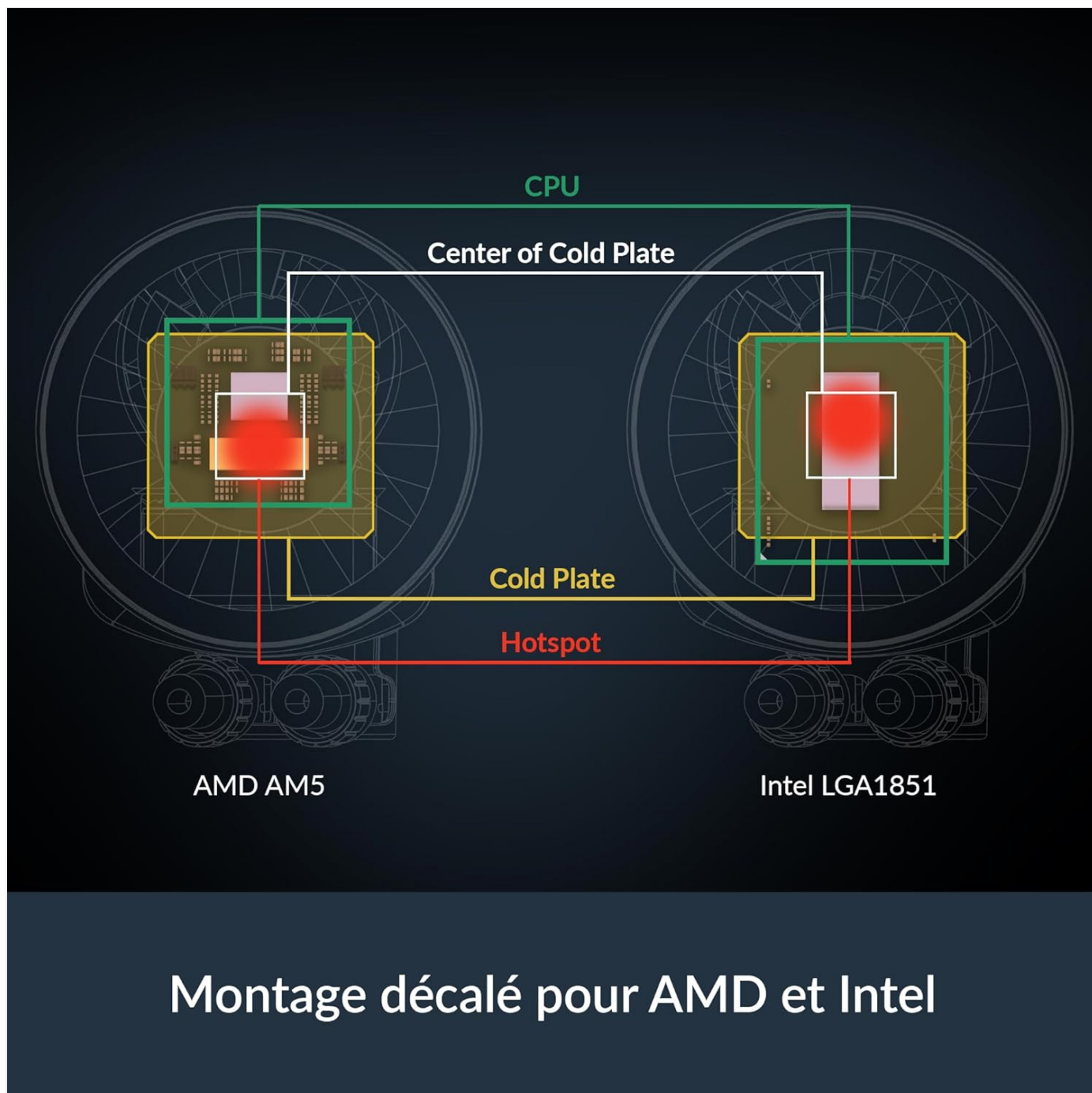
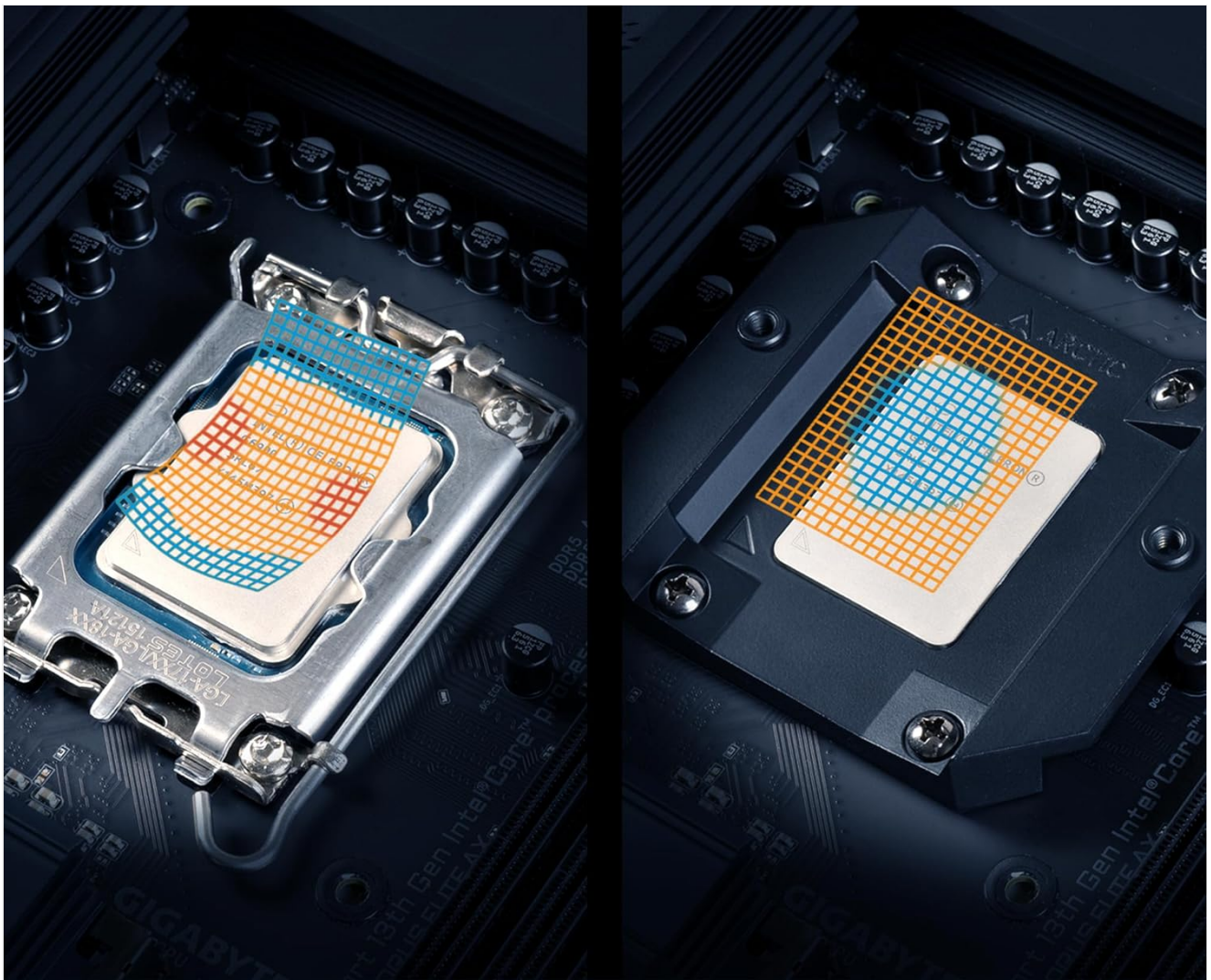


Image: A diagram showing the offset mounting principle for AMD AM5 and Intel LGA1851, illustrating how the cold plate is shifted to cover the CPU's thermal hotspot more effectively.

For Intel LGA1851 / LGA1700:

1. Install the included Intel Contact Frame onto your motherboard. This frame replaces the stock Independent Loading Mechanism (ILM) to optimize contact pressure distribution and improve heat dissipation. Follow the specific instructions provided with the contact frame for its installation.



LGA1851 | LGA1700 Cadre de contact

Image: Comparison showing a standard Intel LGA1851/1700 socket next to one with the ARCTIC Contact Frame installed, demonstrating the improved contact area for the CPU cooler.

2. Secure the pump block to the motherboard using the appropriate Intel mounting brackets and screws. Ensure even pressure is applied.

For AMD AM5 / AM4:

1. Utilize the existing AMD backplate. Attach the AMD mounting brackets to the pump block.
2. Carefully place the pump block onto the CPU, ensuring the offset aligns with the CPU's hotspot. Secure it with the provided screws, tightening them in a diagonal pattern until snug.

4. Radiator and Fan Installation

1. The fans are pre-installed on the radiator. Determine the optimal mounting location in your case (e.g., top, front) for the 420mm radiator.
2. Mount the radiator to your case using the provided screws. Ensure the hoses have enough slack and are not kinked.



Image: An illustration showing the ARCTIC Liquid Freezer III Pro installed inside a PC case, highlighting the pre-installed fans on the radiator and the integrated cable management within the hoses.

5. Cable Management and Connections

The Liquid Freezer III Pro features integrated cable management, routing the radiator fan PWM cables through the hose sleeving. You have two primary connection options:

1. **All-in-One Cable:** Connects all radiator fans, pump, and VRM fan to a single 4-pin PWM header on your motherboard. This simplifies wiring but provides less granular control.
2. **Separate Cables:** For individual control, connect the VRM fan, radiator fans, and pump to separate 4-pin PWM headers on your motherboard. This allows for more precise fan curve tuning.

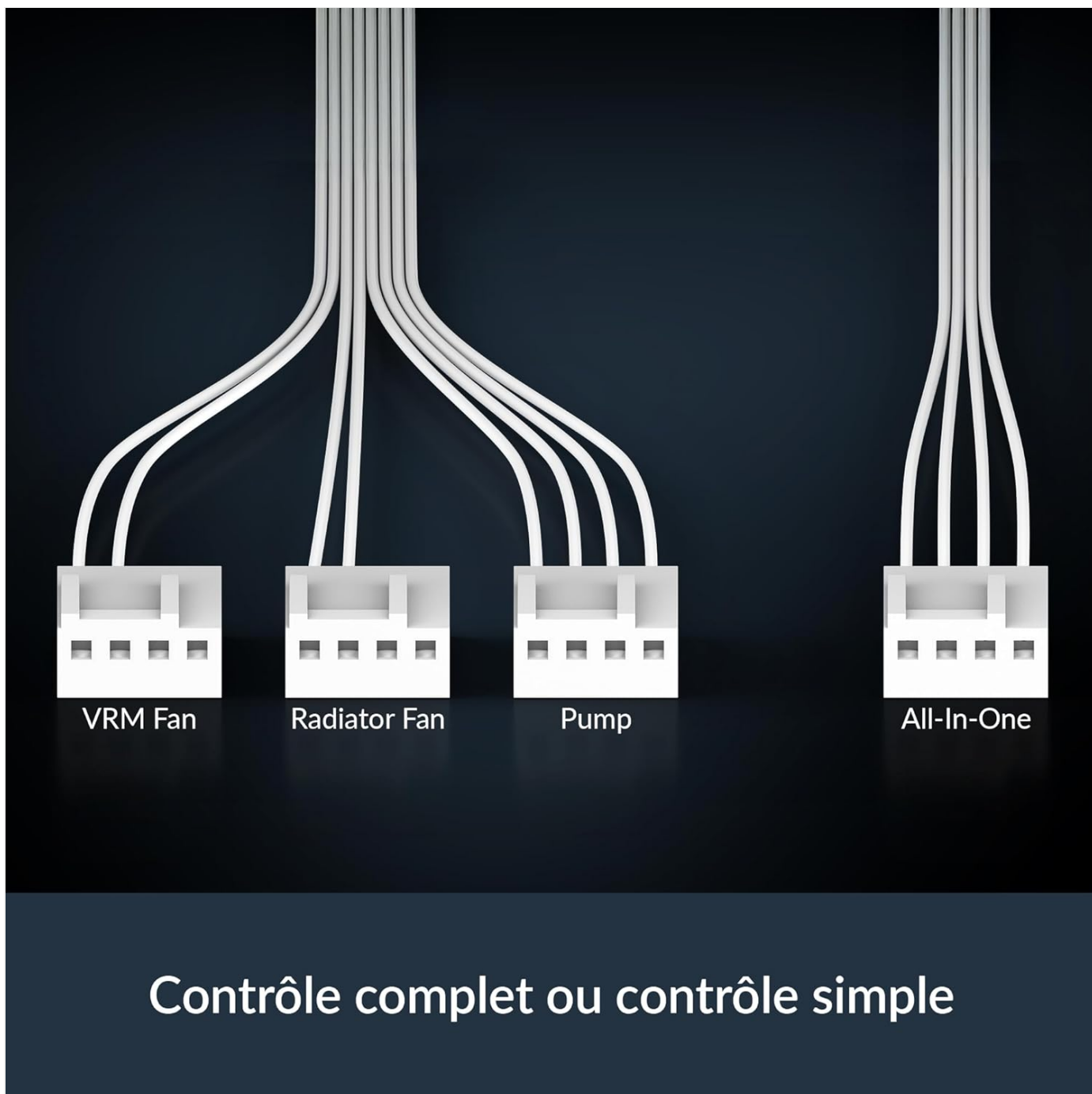


Image: A diagram showing the two wiring options: an "All-in-One" cable for simplified connection, and separate cables for the VRM fan, radiator fans, and pump for independent control.

1. Connect the 3-pin 5V Addressable RGB cable from the pump block to a compatible A-RGB header on your motherboard. Ensure it is a 5V A-RGB header, not a 12V RGB header, to prevent damage.

OPERATING INSTRUCTIONS

1. Initial Power-On and BIOS Configuration

- After completing all connections, power on your computer.
- Enter your motherboard's BIOS/UEFI settings.
- Navigate to the fan control section. Set the CPU_FAN header (or the header where the pump/fans are connected) to PWM mode.
- Configure a fan curve that balances cooling performance and noise levels. Ensure the pump is always running at

100% or a high fixed speed for optimal coolant circulation.

- The integrated VRM fan is PWM-controlled and helps cool the voltage regulator modules on your motherboard. Its speed can be adjusted via the connected PWM header.

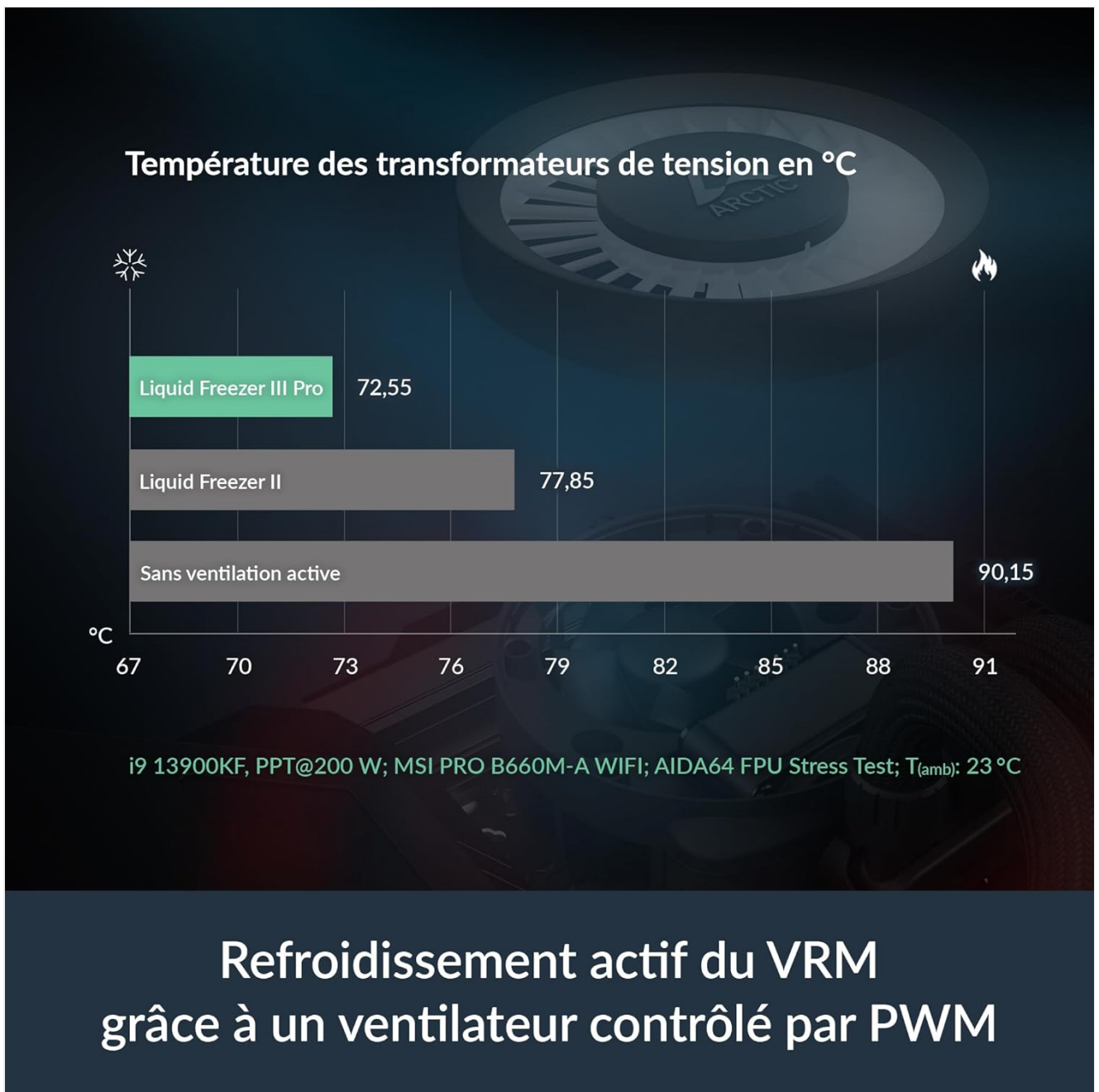


Image: A bar chart comparing VRM temperatures with the Liquid Freezer III Pro, Liquid Freezer II, and without active ventilation, demonstrating the effectiveness of the integrated VRM fan.

2. A-RGB Lighting Control

- The A-RGB lighting on the fans and pump block can be controlled via your motherboard's RGB software (e.g., ASUS Aura Sync, GIGABYTE RGB Fusion 2.0, MSI Mystic Light Sync, ASRock Polychrome Sync).
- Ensure the A-RGB header is correctly connected and recognized by the software.



Image: Logos indicating compatibility with various motherboard A-RGB software, including ASUS Aura Sync, GIGABYTE RGB Fusion 2.0, MSI Mystic Light Sync, and ASRock Polychrome Sync.

MAINTENANCE

Regular maintenance helps ensure the longevity and optimal performance of your AIO cooler.

- **Dust Removal:** Periodically clean the radiator fins and fan blades to prevent dust buildup, which can impede airflow and reduce cooling efficiency. Use compressed air or a soft brush. Ensure fans are not spinning rapidly during cleaning with compressed air.
- **Hose Inspection:** Visually inspect the hoses for any signs of kinks, leaks, or damage. The hoses are designed for durability with a fiber-reinforced EPDM material.



Image: A cross-section view of the cooler's hose, showing its multi-layered construction with fiber reinforcement for durability and leak prevention.

- **No Coolant Refill:** This is a sealed All-in-One unit and does not require coolant refills or maintenance. Do not attempt to open the loop.

TROUBLESHOOTING

If you encounter issues with your Liquid Freezer III Pro, refer to the following common problems and solutions:

- **High CPU Temperatures:**
 - Ensure the pump is running at full speed (100%) in BIOS/UEFI.
 - Verify the pump block is securely mounted to the CPU with even pressure.
 - Check if thermal paste was applied correctly and is making good contact.
 - Ensure radiator fans are spinning and oriented correctly for airflow (intake or exhaust, depending on case setup).
 - Clean any dust buildup on the radiator fins.
- **Fans Not Spinning or RGB Not Lighting Up:**
 - Check all PWM and A-RGB cable connections to the motherboard.
 - Ensure the A-RGB header is 5V (3-pin) and not 12V (4-pin).
 - Verify fan headers are enabled and configured correctly in BIOS/UEFI.
 - Check your motherboard's RGB software for lighting control.
- **Unusual Noise from Cooler:**
 - **Gurgling/Bubbling:** This can occur during initial startup as air settles in the loop. It should subside. If persistent, gently tilt your PC case to help trapped air move to the radiator.
 - **Fan Noise:** Adjust fan curves in BIOS/UEFI to reduce fan speed at idle or low loads. Ensure no cables are obstructing fan blades.
 - **Pump Noise:** While the pump is generally quiet, ensure it's not vibrating against the case or other components.

WARRANTY AND SUPPORT

ARCTIC provides a manufacturer's warranty for the Liquid Freezer III Pro 420 A-RGB. For detailed warranty terms, technical support, and frequently asked questions, please visit the official ARCTIC website:

www.arctic.ac

When contacting support, please have your product model number (ACFRE00189A) and purchase information readily

available.

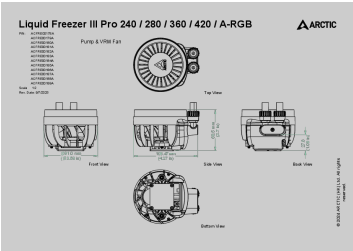


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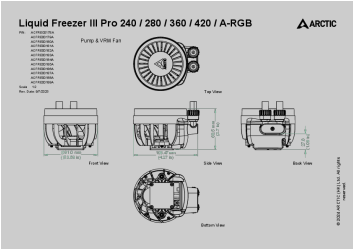
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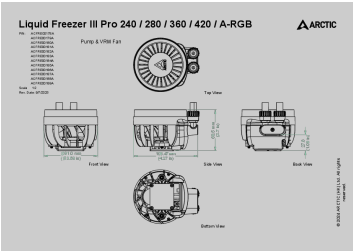
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Abmessungen 447 L x 328 B x 158 H mm Brutto-Gewicht 2982g SKU **ACFRE00189A**
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[ARCTIC Liquid Freezer III Pro Series: Technical Specifications and Dimensional Drawings](#)
Detailed technical specifications and dimensional drawings for the ARCTIC Liquid Freezer III Pro series of All-in-One (AIO) CPU liquid coolers, including 240, 280, 360, and 420 A-RGB models.
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[ARCTIC Liquid Freezer III Pro Series: Technical Drawings and Specifications](#)
Detailed technical drawings and dimensional specifications for the ARCTIC Liquid Freezer III Pro series of CPU liquid coolers, including 240mm, 280mm, 360mm, and 420mm A-RGB models.
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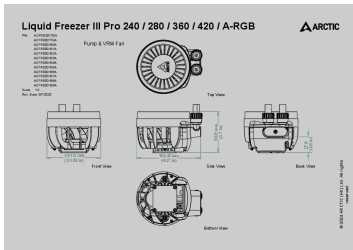


[ARCTIC Liquid Freezer III Pro Series 2D Drawings and Specifications](#)
Detailed 2D drawings and specifications for the ARCTIC Liquid Freezer III Pro series, including models 240, 280, 360, and 420, with A-RGB lighting. Includes part numbers, dimensions, and views of the pump/VRM unit and radiator/fan assemblies.
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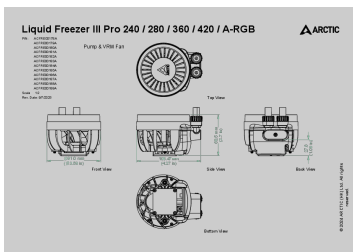
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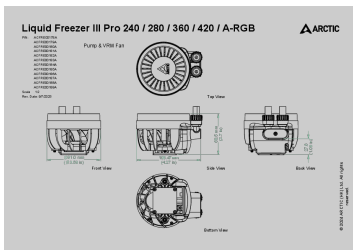
[ARCTIC Liquid Freezer III Pro Series: Technical Specifications and Dimensions](#)

Detailed technical specifications and dimensional drawings for the ARCTIC Liquid Freezer III Pro CPU cooler series, including 240mm, 280mm, 360mm, and 420mm A-RGB models.
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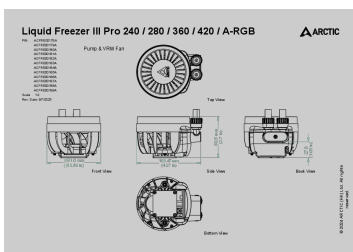
[ARCTIC Liquid Freezer III Pro Series Technical Specifications and Diagrams](#)

Detailed technical drawings and specifications for the ARCTIC Liquid Freezer III Pro series of CPU liquid coolers, including models 240, 280, 360, 420, and A-RGB variants. Features dimensions and part numbers for pump/VRM module and 360mm radiator/fan module.
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ARCTIC SPECIFICATION SHEET Liquid Freezer III Pro 420 A-RGB MORE
INFORMATION MANUALS LIMITED W A R ... III Pro 420 A-RGB White Box

Dimension 447 L x 328 W x 158 H mm Gross Weight 2982g SKU **ACFRE00189A**

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