



Manuals.plus /

› **Thermalright /**

› Thermalright TL-H12-X28-S Thin Computer Case Fan Instruction Manual

Thermalright TL-H12-X28-S

Thermalright TL-H12-X28-S Thin Computer Case Fan Instruction Manual

Model: TL-H12-X28-S

Brand: Thermalright



Image: The Thermalright TL-H12-X28-S 120mm ARGB performance fan, showcasing its vibrant lighting.

INTRODUCTION

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your Thermalright TL-H12-X28-S Thin Computer Case Fan. This 120mm ARGB fan is designed for efficient cooling within computer cases and CPU cooler setups, featuring a 28mm thickness, 2150RPM speed, and PWM intelligent temperature control.



TL-H12-X28-S 120mm ARGB performance fan

The ideal cooling fans for your PC provide optimal airflow to keep components cool at low to medium speeds. With up to 80.45CFM of airflow at peak 2150 RPM, TL-H12-X28-S Series fans deliver the perfect balance between low noise, strong static pressure, and high airflow without compromising performance.

Image: An overview of the Thermalright TL-H12-X28-S 120mm ARGB performance fan, highlighting its design.

KEY FEATURES

- **Fan Parameters:** 120x120x28mm size, 2150RPM \pm 10% speed, \leq 29.4dBA noise, 4-pin PWM power, 5V 3PIN ARGB lighting, 0.25A current, 2.65mm H₂O (MAX) air pressure, 80.45CFM (MAX) air volume.
- **High Speed Operation:** Achieves 2150RPM for effective heat dissipation, utilizing a 7 noise-reducing fan blade design.

Unparalleled COOLING performance

Enhance 28mm thickness, fan blades generate more airflow and bring more heat out.



Image: The Thermalright TL-H12-X28-S fan, emphasizing its enhanced 28mm thickness for improved cooling performance.

- **PWM Intelligent Temperature Control:** Automatically adjusts fan speed based on system temperature when connected to a compatible motherboard header.
- **Durable Bearing:** Features S-FDB V2 bearing for stable, long-lasting, and quiet operation, minimizing fan shaking and vibration.

LONG LASTING S-FDB BEARING V2

Fan Motor equipped with high durability S-FDB (Fluid Dynamic Bearing) bearing V2, proving low-friction and low-noise operation. For a long service life span in your PC build. Thermalright fan with S-FDB bearing V2 is maintenance-free, please do not disassemble.



Image: A close-up of the Thermalright TL-H12-X28-S fan, detailing the S-FDB (Fluid Dynamic Bearing) V2 for durability and low-noise operation.

- **Advanced Motor Design:** Incorporates a 3-phase 6-pole motor for smoother operation and reduced power consumption.



BUILD TOUGH, THINK ERGONOMIC

Both fan blades and frame are made with industrial grade PBT polymers, ensuring strength and stability in computer use cases. Each corner of the fan has silicone rubber pad pre-installed for noise and vibration damping. 3 phase 6 pole motor allows smoother operation and less power consumption



Image: The internal structure of the Thermalright TL-H12-X28-S fan, showing the 3-phase 6-pole motor and industrial-grade PBT polymer construction with silicone rubber pads.

- **Versatile Application:** Suitable for use as a chassis fan, with air coolers, or water cooling radiators for

enhanced system cooling.

VERSATILE COOLING SCENARIOS



Case Airflow



Air Coolers



Water Cooling Radiators

Image: The Thermalright TL-H12-X28-S fan depicted in diverse usage scenarios, including case airflow, air cooling, and water cooling radiators.

SETUP AND INSTALLATION

Before installation, ensure your computer system is powered off and disconnected from the main power supply. Refer to your motherboard and case manuals for specific mounting locations and cable routing.

1. **Prepare Mounting Location:** Identify the desired fan mounting location within your computer case or on your CPU cooler. Ensure adequate clearance for the 120x120x28mm fan dimensions.
2. **Mount the Fan:** Secure the fan to the chosen location using the provided screws. The fan features dual-side soft-touch rubber pads for vibration absorption.

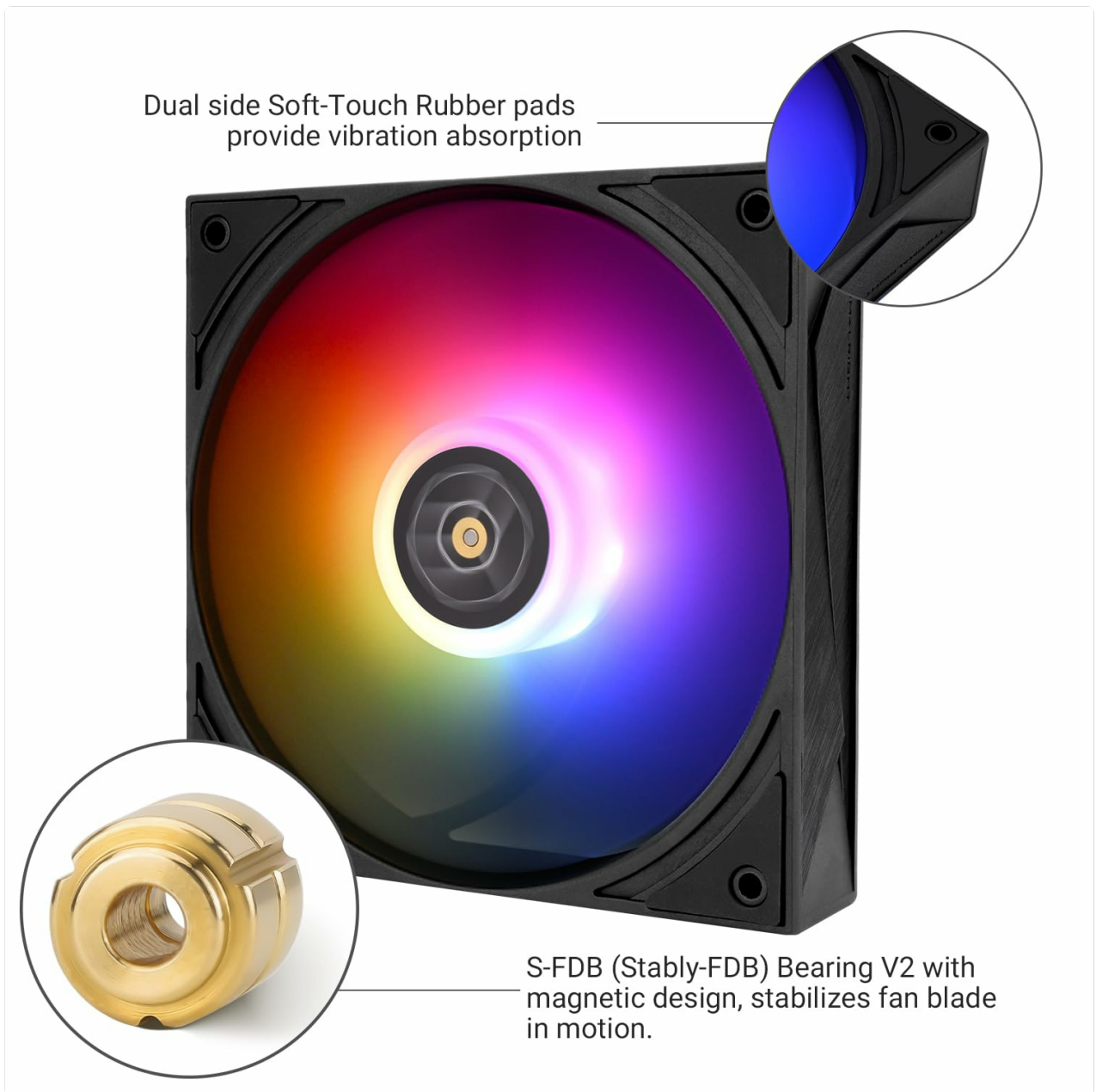


Image: The Thermalright TL-H12-X28-S fan showcasing its dual-side soft-touch rubber pads for vibration absorption and the S-FDB (Stably-FDB) Bearing V2 with magnetic design for stable fan blade motion.

3. **Connect PWM Cable:** Connect the fan's 4-pin PWM power cable to an available 4-pin fan header on your motherboard. This enables intelligent temperature control.

POWER FROM DESIGN

After years of engineering, Thermalright comes up with the original design of TL-H12-X28-S, able to maximize airflow within 2150RPM fan speed. Focus on balance between airflow and static pressure performance, the Thermalright TL-H12-X28-S fan series is an all-around choice for heatsink, radiator or computer case cooling scenarios.



Image: A diagram illustrating the connection of the PWM fan speed sync connector to the motherboard.

4. **Connect ARGB Cable:** Connect the fan's 5V 3-pin ARGB lighting cable to a compatible 5V 3-pin ARGB header on your motherboard or an ARGB controller. **Note:** This fan only supports 5V 3-pin ARGB and is not compatible with 12V 4-pin RGB headers.
5. **Cable Management:** Route cables neatly to avoid interference with other components and to maintain good airflow.
6. **Power On:** Once all connections are secure, close your computer case, reconnect power, and power on your system.

OPERATING INSTRUCTIONS

The Thermalright TL-H12-X28-S fan operates automatically once installed and connected correctly.

- **PWM Control:** If connected to a 4-pin PWM header, the fan speed will be automatically regulated by your motherboard based on CPU or system temperature. You can typically adjust fan curves and profiles through your motherboard's BIOS/UEFI settings or dedicated software.
- **ARGB Lighting Control:** The 5V 3-pin ARGB lighting can be controlled via your motherboard's ARGB software (e.g., ASUS Aura Sync, MSI Mystic Light Sync, Gigabyte RGB Fusion, ASRock Polychrome Sync) or a standalone ARGB controller. Ensure compatibility between your motherboard/controller and the fan's ARGB standard.
- **Airflow Direction:** Ensure the fan is oriented to provide optimal airflow for your system. Typically, fans are installed to draw cool air into the case or exhaust hot air out.

MAINTENANCE

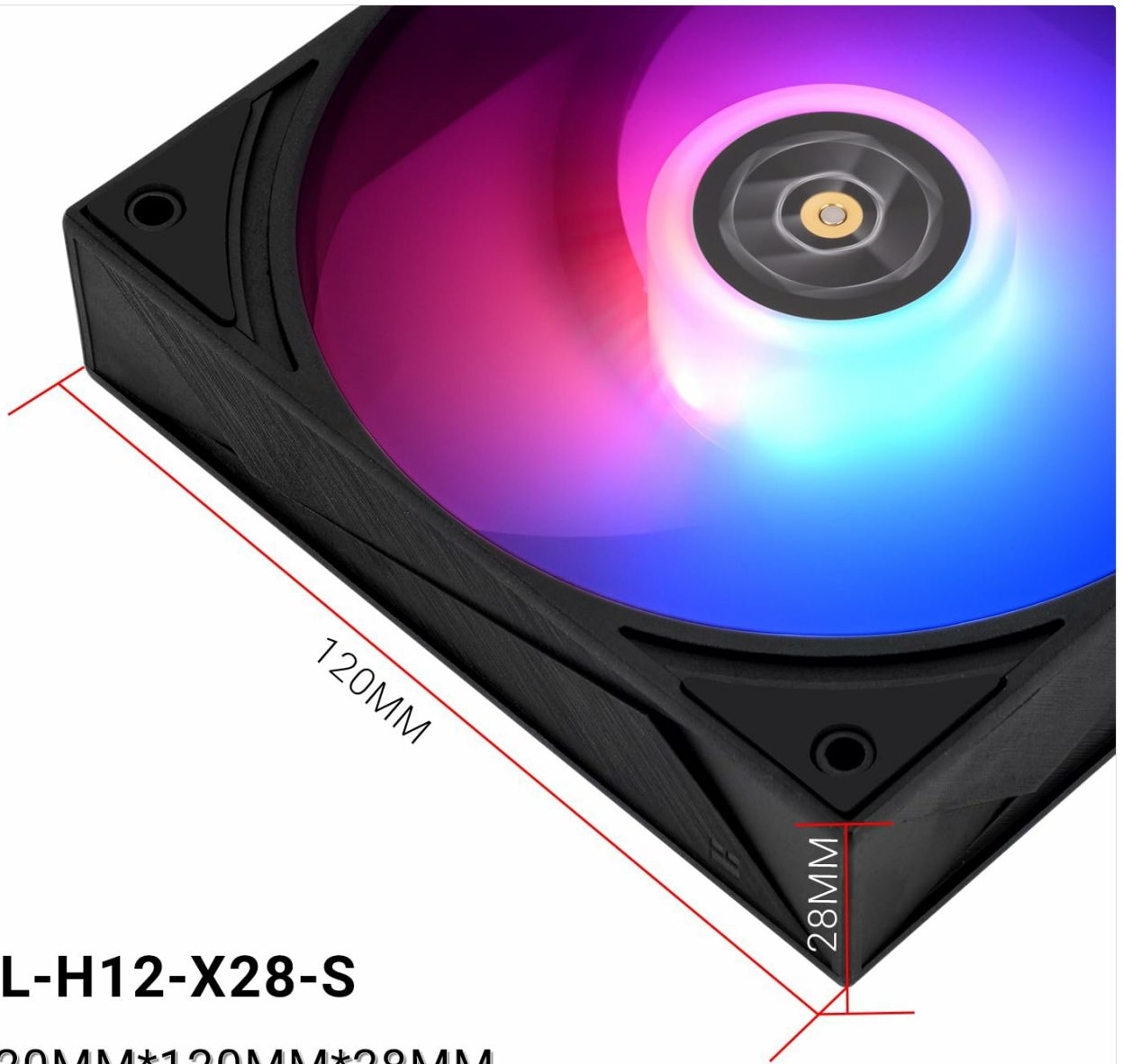
Regular maintenance helps ensure optimal performance and longevity of your fan.

- **Dust Cleaning:** Periodically inspect the fan blades and frame for dust accumulation. Use compressed air or a soft brush to gently remove dust. Ensure the fan is powered off and disconnected before cleaning.
- **Cable Inspection:** Check all cables (PWM and ARGB) for secure connections and any signs of wear or damage.
- **Bearing Longevity:** The S-FDB V2 bearing is designed for long-term, maintenance-free operation. Do not attempt to disassemble the fan or lubricate the bearing, as this may void the warranty and damage the unit.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Fan not spinning	Incorrect power connection, insufficient power, faulty fan header, fan failure.	Ensure 4-pin PWM cable is securely connected to a functional motherboard fan header. Check BIOS/UEFI settings to ensure the fan header is enabled and configured correctly. Test with another fan header if available.
ARGB lighting not working	Incorrect ARGB connection, incompatible ARGB header, software issue, faulty ARGB controller.	Verify 5V 3-pin ARGB cable is connected to a compatible 5V 3-pin ARGB header (not 12V 4-pin RGB). Ensure ARGB software is installed and configured correctly. Check for loose connections.
Excessive noise or vibration	Loose mounting screws, dust accumulation, fan blade obstruction, bearing issue.	Ensure fan is securely mounted. Clean fan blades and frame from dust. Check for any cables or objects obstructing fan blades. If noise persists and is not due to external factors, the fan may require replacement.
Fan not reaching maximum speed	PWM settings, low system temperature.	Check your motherboard's BIOS/UEFI fan control settings. The fan speed is controlled by PWM based on temperature; it will only reach maximum RPM under high thermal load.

SPECIFICATIONS



TL-H12-X28-S

120MM*120MM*28MM

Only Support 5V 3Pin ARGB, DO NOT support 12V 4Pin RGB

Image: The Thermalright TL-H12-X28-S fan with its dimensions clearly marked as 120mm x 120mm x 28mm.

Feature	Detail
Model	TL-H12-X28-S
Dimensions (L x W x H)	120mm x 120mm x 28mm (4.72"L x 4.72"W x 1.1"H)
Rotational Speed	2150 RPM \pm 10% (Max)
Noise Level	\leq 29.4 dBA
Air Flow Capacity	80.45 CFM (Max)
Air Pressure	2.65 mm H ₂ O (Max)
Power Connector	4-Pin PWM
Lighting Interface	5V 3-Pin ARGB
Current	0.25 A
Voltage	12 Volts (DC)
Wattage	3 Watts
Bearing Type	S-FDB V2 (Fluid Dynamic Bearing)
Compatible Devices	Desktop (Case Fan, CPU Cooler Fan)
Included Components	Case fan, PC cooling fan

WARRANTY AND SUPPORT

Thermalright products are manufactured to high quality standards. For specific warranty information, please refer to the warranty card included with your product or visit the official Thermalright website. For technical support or inquiries, please contact Thermalright customer service through their official channels.