

AuroraLamp — Technical Appendix

This section provides essential hardware and configuration information for users, installers, and maintainers.

Operating Modes

Jumper Position	Mode Name	Description
Left (1)	Rainbow Fade	Smooth continuous transition through all colors of the visible spectrum.
Center (2)	Sunstorm	Dynamic effect simulating solar flares — deep orange to near-white flashes.
Right (3)	Christmas Glow	Gentle fade between festive colors: greens, reds, and golden tones.

The jumper selects the active color cycle at power-up.
The lamp automatically loops through its pattern until powered off.

Power Supply

Parameter	Specification
Input Voltage	5 V DC via USB-C
Typical Current	40 – 120 mA (depending on brightness and color)
Connector	USB-C, reversible plug
Polarity Protection	Built-in

Use only standard 5 V USB power sources (e.g., phone charger, PC, or power bank).

LED System

Component	Description
LED Type	WS2812B (addressable RGB)
Control Logic Voltage	5 V (TTL compatible)
Color Depth	24-bit (8 bits per channel)
Gamma Correction	Applied in firmware for natural light transitions
PWM Frequency	~800 kHz internal (per WS2812B spec)

Firmware

- Fully self-contained — no external controller required.
- Gamma-corrected brightness control ensures visual consistency across all color modes.
- Smooth blending between predefined palettes (rainbow, sunstorm, and festive).

Firmware auto-starts and runs continuously after power-up.

Notes & Safety

- Operate in dry indoor environments only.
 - Do not short the USB-C pins or modify the LED wiring while powered.
 - Avoid direct viewing of full-brightness white light from close distance.
 - Disconnect power before opening or modifying the enclosure.
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Version

Firmware: **v1.0.0**

Hardware Revision: **A1**

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Crafted with care — engineered for light.