



Flite 3S 18350 Powered Induction Heater Quick Start Guide

Thank you for purchasing a Flite™ induction heater! Flite packs a lot of functionality into its small size. This is an overview of the most important info.

18350 Battery Requirements:

- 3x matching 18350 batteries
- Flat top
- Unprotected/high discharge (CDR \geq 9A)
- 1100+ mAh capacity recommended. 900 mAh is serviceable, less than 900 mAh capacity not recommended

Flite has an on-board battery management system that includes balanced charging, low voltage cut off, reverse polarity protection, and over voltage protection.

Battery Charging in Unit:

To charge the Flite's batteries in place, attach a 12.6VDC charging adapter (2.1mm x 5.5mm center positive tip) to the Flite's DC port.

Suggested charge rate: 12.6VDC@1A. Charge status is managed by the charging adapter.

To use the Flite:

1. Slide Flite's power switch to Pulse or Full, as desired. Pulse/PWM operation is explained below.
2. Insert the Dynavap into the coil and either press the cap to the two contacts to activate the heater, or press the push button on the side if present. If pressing the cap against the switch contacts, **press lightly to moderately; do not grind or use excessive force!**
3. Remove when the Dynavap clicks, or to taste.

Cap-as-Switch™ suggestions for best results:

- Press lightly to moderately to activate; **do not grind the cap against the contacts or use excessive force!**
- If you're having trouble making a good connection, rotate the cap a few degrees and try again. When you do make a good connection, note the position of the digger so you can return the cap to this spot in the future.
- Clean caps connect better. Use isopropyl alcohol to clean the end of your cap.

NOTE: The cap-as-switch feature is new to the Flite. If you decide you don't like it, Fluxer Heaters will be glad to convert your cap-as-switch heater to a push button heater for the cost of postage. Email fluxerheaters@gmail.com for more info.

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What is Pulse Width Modulation (PWM)?

Pulse width modulation (PWM) regulates power to a device by turning it on and off a number of times per second. Flite uses a low frequency PWM, with a pulse rate of less than 20 Hz, or less than 20 times per second. This is considered slow.

Looking at the pulses individually, each pulse is actually a pair of individual on/off events, also referred to as a “duty cycle.” In the following examples, the up waves = DEVICE ON and the down waves = DEVICE OFF:

50% duty cycle



75% duty cycle

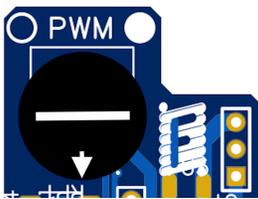


25% duty cycle



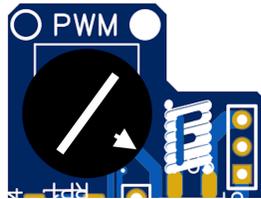
On the Flite, PWM duty cycle is set via the PWM trim pot adjustment wheel. Look for the small arrow on the wheel to note its position, as below:

50% Duty Cycle:



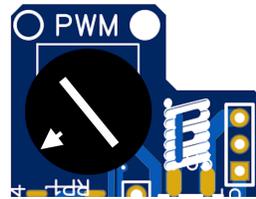
50% on ; 50% off

75% Duty Cycle:



75% on ; 25% off

25% Duty Cycle:



25% on ; 75% off

Use PWM to enhance flavor and extraction

Note: Expect a small learning curve to get the most from this feature.

PWM intentionally interrupts the heating process. These interruptions extend the time needed to heat a vapcap until it clicks, which in turn allows the contents of the vapcap more time to vaporize. The longer, slower heating time typically produces more vapor and/or more flavor, depending on how one sets the trim wheel. Other factors such as your tip material and your batteries' charge status will also affect PWM results.

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With PWM it is possible to achieve full extraction in 1-2 heating cycles. It's also possible to combust in 1-2 heating cycles with PWM, so use some caution, and be aware that sometimes you may need to pull before the click due to the higher temps PWM can generate.

NOTE: PWM is NOT efficient! PWM uses more energy than full power.

Keep this in mind when using PWM.

Suggestions for best PWM results:

- Use PWM on the first or second heating cycle for the most impressive results.
- Ti and SS tips behave differently at lower duty cycle positions (e.g., <40% DC), with SS getting hotter. The greater mass of SS accepts the heat more readily when it is delivered as a slow pulse.
- PWM is inefficient, as noted.
- You may find that PWM heats more intensely as the battery depletes, due to the even slower heating time.
- Flite is sturdy and can tolerate extended PWM sessions of >30 seconds, though note that such longer heating events consume a lot of battery life.
- You can adjust the PWM on the fly, mid-use, if desired.
- Some amount of “chatter” and/or “noise” is common when using PWM, especially with the cap-as-switch.
- The PWM timing mechanism is analog, not digital, and is based on the charge/discharge rate of a capacitor. This is why PWM doesn't always adhere to a steady beat.

Safety:

The Flite has several internal safety mechanisms, including electrical and thermal power fuses:

- The electrical circuit is protected by 9A PTC fuses. The fuses trip when they sense a short or excess current draw. They reset when power is cycled off/on.
- The thermal fuse (the black rectangle touching the coil) is rated to 110°C. It will open if it senses a temperature in excess of that, temporarily stopping power to the relay and circuit triggering mechanism. This fuse may be reset by cycling the power off and back on after it has cooled below its trigger temperature, a process that typically takes 30-60 seconds.

External power supply WARNING: Your Flite is designed to be run from 3x 18350 batteries ONLY! DO NOT use a mains-powered PSU as the more efficient power supply may damage the Flite!!!! The Flite's very small circuit doesn't have the necessary capacitance to meet the power demands of a mains-powered PSU!

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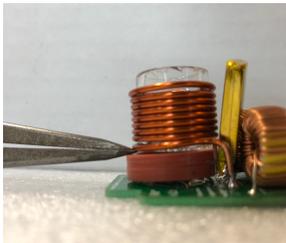
Coil Height Adjustment:

Flite's heating cycle can be altered by raising or lowering the position of the heating coil.

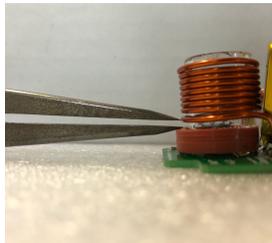
Like other Fluxer Heating devices, the position of the bottom loop of the Flite's heating coil relative to the tip of the vapcap is critical to the length of time it takes your vapcap to click.

Raising the bottom loop of the coil *up*, above the position of the vapcap's tip, will increase the time it takes the vapcap to click, while lowering it decreases the time to click. Altering this distance by as little as 1mm or 2mm can make a noticeable difference in your Dynavap user experience!

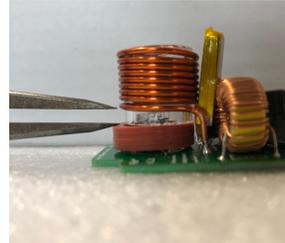
No gap = quickest to click,
the coolest position



In the middle =
typical performance



Large gap = slowest to click,
the hottest position



Adjust the coil using the same procedure described in this video: "Flux Deluxe coil height adjustment procedure and demo," <https://youtu.be/QYlfpyd3NHA>



YouTube link:

If the coil needs to be re-centered after adjustment, use a Sharpie or similar non-metallic, non-Dynavap object to reposition the coil relative to the heater. The copper coil wire is soft and does not require much force to move.

Warranty: Your Flite includes a 12 month warranty on parts and labor. Please contact fluxerheaters@gmail.com with issues and/or questions.

Thank you for purchasing a Flite portable induction heater from Fluxer Heaters! I hope it brings you much enjoyment!

Nothing fluxes like a Fluxer!™