

## BASIC OPERATIONS

### Starting your board

Press and hold the POWER button until you hear the beeper “click” and see the LED flash the battery level, then release:

- GREEN      **8.6 volts or more**
- YELLOW    **8.5 volts to 7.5 volts**
- RED        **7.4 volts or less**

### Firing Modes

All (5) Firing Modes are enabled by default and indicated by a “fast flash” on the LED. Tapping the power button advances to next available mode. This operation is programmable.

- PURPLE    **RAMPING**      PSP default/ininitely tunable
- BLUE       **SEMI AUTO**    1 shot per pull
- TEAL       **REACTIVE**     2-5 shots per pull/release
- GREEN      **BURST**        2-5 shots per pull
- YELLOW    **FULL AUTO**    Fires continuously while pulled

### Eye Control and Eye/Breech Status

Hold the power button for 1 second to toggle your eyes On and Off. All eye status and breech issues are indicated by a **RED LED**

- SOLID ON**            No ball detected and Long Beep
- SLOW FLASH**       Eyes Toggled Off (\*no mode changes)
- FAST FLASH**        Blocked Eyes (\*when enabled)

When the LED is displaying the “fast flash” Firing Mode LED, your eyes are operating, detecting paint, and ready to fire.

### Turning your board off

Press and Hold the power button about 3 seconds until the LED **FLICKERS WHITE** and shuts off, then release the power button.

## PROGRAMMING and CUSTOMIZATION

### Settings Mode

To adjust your board settings, hold down the trigger and turn the marker on. Once the LED starts flashing **WHITE**, release the trigger and power button.

The LED will now start a **PURPLE FLICKER** indicating you are at the first adjustable setting (Firing Mode / see settings list). Tapping the trigger advances to the next adjustable setting and eventually wraps back around to this first setting again.

When the LED is indicating the setting you wish to adjust, pull and hold the trigger until you hear the “selection” tone, and then let go. The board will then count (flash and beep) the current value of the setting. When the board is done counting you have 3 seconds to start the entry of a new value by tapping the trigger the number of times for the new value. To save the new setting value, tap the power button (like an ENTER KEY). The board will then “rainbow flash” the LED, sound a “save” tone, then revert back to the LED indication for the setting you have adjusted. If you want to double-check your newly adjusted value, pull and hold the trigger again to restart the counting operation.

### Restoring Factory Defaults

Pull and hold the trigger in Settings Mode for 5 seconds until you hear the “reset” tone and the LED illuminates **SOLID WHITE**. Release the trigger and the LED will flash **WHITE 3x** again then return back to the first programming setting with all settings restored to default values.

## STANDARD INCLUDED FEATURES

Forced Shot - Active during empty breech conditions when you pull & hold the trigger (use this to trigger sound activated loaders).

Trigger Buffering - Automatically “queues up” a valid trigger pull when actively firing a ball for fast and smooth paint streaming.

Last Mode Recall - The board boots up in the last firing mode used.

## BPS Fine Tuning Mode

The BPS Fine tuning mode allows you to easily adjust and maximize your marker’s rate of fire. The true rate of fire can be influenced by many factors external to your marker, including temperature, paint, ambient pressure changes from weather or altitude, along with general weather conditions overall.

Throw in the additional variance in accuracy of the microcontroller in your gun and the chronograph you’re shooting across and you get a compounding of many small, but influential factors.

Rate of fire is controlled in your marker by calculating a “Holdoff Delay” based on the desired rate of fire you want to shoot at. While this value is an ideal number based on standard clock timing operations, this delay can fall long or short for all the reasons iterated above.

The BPS Fine Tuning mode lets you add or subtract up to 15ms of time from this delay on a *per firing mode basis*, providing you the ability to easily and precisely adjust your rate of fire to squeeze every last bit of performance from your marker despite all the internal and external conditions that can affect it.

Start tuning by firing a few shots across the chronograph to determine your current rate of fire (best measured in full auto or burst modes - however, you can tune and compensate for all modes).

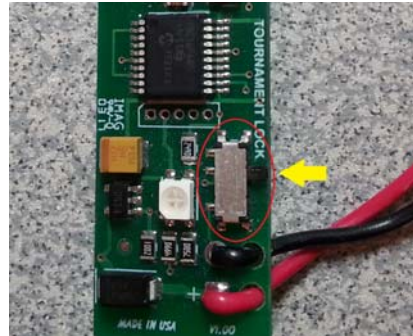
DECREASE the rate of fire by tapping the power button, or INCREASE the rate of fire via a tap and hold operation with the power button. Fire several more shots and determine if the new rate of fire is at or below the max BPS rate allowed by your event. Repeat this process until you’re satisfied with the rate. Once set and consistent, shut down the marker to save off this new rate with a pull and hold of the trigger.

**BPS RATE DECREASE** - Tap the Power Button and you’ll hear a “decrease” tone for a slower rate of fire (+1ms Holdoff).

**BPS RATE INCREASE** - Press and Hold the Power Button for 1 second until you hear an “increase” tone for faster rates (-1ms Holdoff).

## TOURNAMENT LOCK

When installing your Vindicator Board, note the position of the Tournament Lock switch. It is labeled “Tournament Lock” and slides up and down. In the UP position as indicated by the yellow arrow, the board is programmable. Slide the switch down to lock out all program changes for compliance with tournament rules.



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ETHA  
ETHA-LT



Vindicator  
LED Upgrade  
Board



USER  
MANUAL

STK Paintball, Inc.