WICKED AIR SPORTZ

Equalizer™

Usage Manual for
The Tippmann A5 & Pro-E

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USAGE

The Equalizer has numerous features, which can be a bit overwhelming to those that are not use to having so much flexibility. However, every possible step has been taken to make sure that the use of this product is extremely simple.

Turning on the Equalizer

If your setup is equipped with a plastic push button, press and hold the button for ½ of a second, and then release it.

If your setup is not equipped with a plastic push button, insert a small object (such as an Allen wrench) into the hole located in the front of the grip frame. Press and hold the power button for ½ of a second, and release it. The LED should light orange and stay that way for several seconds after releasing the button.

Turning off the Equalizer

To turn off the Equalizer, press and hold the power button until the LED becomes solid red, and then release the button.

General Usage Tips

The LED boot sequence is as follows: solid orange (booting), followed by either solid green (A5 mode) or solid red (Pro-E mode).

Because the Equalizer can easily exceed the feed rate of any loader in existence, it is recommended that you use a force-feed type of loader for the best possible performance when using the Pro-E model. The A5's Cyclone feed will provide exceptional results.

LED Colors and Meanings

The LED used with the Equalizer can light up in one of 3 different colors. The Equalizer uses this to indicate to the user when certain events are occurring. This is a breakdown of what the LED states represent:

Blinking Orange: Normal operation.

Blinking Red: Battery is low.

Tournament Lock

Because the Equalizer board requires a tool to turn it on and off, no tournament lock is necessary for competition paintball.

Trigger Polarity

The Equalizer board supports both the A5 E-Grip frame as well as the Pro-E marker. The trigger switch responds differently for these two configurations. The A5's grip frame releases the trigger switch when it is pulled, and presses it when the trigger is released. The Pro-E is just the opposite, where the trigger switch is pressed when the trigger is pulled and released when the trigger is released. Because of the difference between the switches, it is necessary to program the Equalizer board for your configuration BEFORE using it!

Press the trigger safety to the SAFE position. Make sure the power is off. Make sure that your marker has a barrel sock in place and the air supply shut off. Although it is not possible to fire the marker while in polarity programming mode, it is always good to practice safe marker handling.

Press and hold the power button until the LED changes from orange to either green or red, then release the power button. This will take approximately 6 seconds. Once the LED is red or green, momentarily pressing and releasing the power button will toggle the color of the LED between green (A5 mode) and red (Pro-E mode). Set the color of the LED for your configuration (A5=green LED or Pro-E=red LED). Once the color has been set, do not touch the power button. After 5 seconds the marker will shut off and the trigger polarity will be set.

Trigger Programming

The Dwell, Debounce™, Rate of fire (ROF) Cap, and Firing Mode functions are programmable by following these instructions:

Make sure the power is off. Make sure that your marker has a barrel sock in place and the air supply shut off. Although it is not possible to fire the marker while in trigger programming mode, it is always good to practice safe marker handling. Press the trigger safety to the FIRE position.

Pull the trigger, and hold it in the back position. Now, press and hold the power button for 1 second. During this time, the LED will light up green.

Now, release the power button and then the trigger. The LED will light red. The marker is now in "trigger programming mode".

Pulling and releasing the trigger will change the LED color, advancing to the next programming feature. This is also known as the "programming menu". The following colors equate to the feature selected:

Solid Red: Dwell programming mode.
Solid Green: Debounce™ programming mode.
Flickering Green: Rate of Fire (ROF) cap programming mode.
Alternating Green/Orange: Firing mode.

Once you have reached the last feature (firing mode), an additional trigger pull will start the sequence of colors over again. This is also known as the "programming menu start".

When you decide which programming feature you want to change, pull the trigger and hold it until the LED goes out, and then release the trigger. There will be a 2 second pause, and then the LED will flash green the number of times that represents something associated with that feature. For example, if you were programming the Debounce™ and the settings were the factory default (20ms), you would see the LED flash **green** 20 times in a row, indicating the Debounce™ is set to 20ms. The flashing of the LED shows you the current setting *before* you change it.

Once the LED is done flashing, there is a 5 second time period to begin programming the new setting. To change the setting, pull and release the trigger the number of times equal to how you wish to program the feature. On each pull of the trigger, the LED will light up **red** (indicating that the pull has been detected). If you decide not to change the feature setting at all, simply do not touch the trigger at all for 5 seconds.

The LED will then blink green/red alternately to indicate there was a programming error, and then go back to the programming menu. The feature setting will not be changed.

Once you have pulled and released the trigger the number of times you wanted the feature setting to be, do not touch the trigger. After 5 seconds, the LED will flash a rainbow of colors indicating that the feature setting change has been accepted. After this, the marker is in the programming menu again.

If you program a feature outside of its specifications (for example, programming the dwell to 1ms) the LED will blink green/red alternately indicating that there was a programming error.

Hint: you do not have to wait and count the flashes for the current setting. Any trigger input immediately bypasses the flashes and begins programming the new setting. Each feature and its programming are described in detail below:

Dwell

After selecting the Dwell programming feature, and once the LED stops flashing, you can now pull and release the trigger once for every FULL 1ms of time you want the dwell to be.

The default dwell is 6.0ms. The lowest allowable dwell time is 4.0ms and the longest allowable time is 50.0ms. According to the solenoid manufacturer, the dwell should never be below 5.0ms for proper operation. If you have a problem with the sear not actuating, increase this value.

Debounce™

Pull and release the trigger once for every 1ms of time you want the setting to be. For example, if you were programming the Debounce to 5ms, you would pull and release the trigger 5 times. The default Debounce™ setting is 20ms.

ROF Cap

Pull and release the trigger once for the number of times you want the Rate of Fire (ROF) cap to be. For example, 20 pulls/releases would be 20 bps. The default ROF Cap is 15 bps.

Firing Mode

Pull and release the trigger the number of times necessary to set the Firing Mode to what you want to use.

The following is a list of the possible Firing Modes and the flashes (trigger pulls required):

> 1 flash   – Semi-auto (NPPL legal)
> 2 flashes – 3 shot ramping (PSP legal)
> 3 flashes – 3 shot full auto (NXL legal)
> 4 flashes – Auto Response
> 5 flashes – Turbo

If you pull and release the trigger more than 5 times, then the LED will toggle green/red alternately to indicate there was a programming error, and then go back to the programming menu. The default Firing Mode is 1.

Programming Complete

Once you pulled and released the trigger the number of times necessary to set the function, wait a few seconds. The LED will flash red/green/orange in rapid succession (numerous times) to let you know that the new setting has been saved. After this, the LED will return to the color representing what the current programming menu item is. At this point, you can once again pull and release the trigger to toggle between Dwell, Debounce™, ROF Cap, and Firing Mode.

RESET

You can perform a complete reset, restoring all settings to the factory defaults. To do this just hold down the trigger for 6 full seconds while in the programming menu. It does not matter what programming mode you are currently in.

The LED will start flashing red, letting you know that a reset operation is being performed. After this occurs, you will be back to the programming starting point. DO NOT release the trigger until you see the LED flashing red or the reset will not occur.

Terminology

Dwell

Dwell is the amount of time that the solenoid will be activated. This time is measured in milliseconds (1/1000th of a second). Too short of a dwell time will not release the sear mechanism. Too long of a dwell time will reduce battery life.

Debounce™

Debounce™ is the amount of time the trigger switch must be stable before checking for another trigger pull. This time is measured in milliseconds.

If you find that your marker is double firing, increase the Debounce time. To make your marker fire faster due to being more responsive to the trigger, decrease the Debounce time. Wicked Air Sportz's patented Debounce™ not only filters the trigger switch input, but also handles mechanical bouncing issues.

ROF Cap

The rate of fire (ROF) cap sets the maximum cycle speed of the marker. Setting this value to low will reduce the usable speed of the marker. Setting this value too high can cause misfires and "chops" if the hopper can not keep up.

Firing Mode

The Firing Mode determines how the marker will fire. The firing modes are:

Semi-auto - one pull/release of the trigger fires the marker one time

3 shot ramping – 3 trigger pulls are required (semi-auto) and the consecutive trigger pulls will fire 3 shots per pull as long as the trigger is pulled at least 5 bps. This adheres to the 2005 PSP rules.

3 shot full auto - 3 trigger pulls are required (semi-auto) after which the trigger can be held to achieve full auto firing. This adheres to the 2005 NXL rules.

Auto Response - Fires one shot for each pull or release of the trigger. If the trigger is held for more than ¼ of second, when the trigger is released no shot is fired.

Turbo- Fires one shot for each pull of the trigger until the time between trigger pulls is less than ¼ of a second at which point it will fire on each trigger pull and trigger release.

Note: The firing mode controls how the marker fires regardless of other settings.

Reset

If you find that you are having problems remembering the factory defaults, just use this option to reset your board and start over!