

# Stage 4

for the Ion Marker



Instructions Version 1.01  
Board Version 1.0

## Power

To turn the marker on, press and release the Power button. The LED should turn on right away.

To turn the marker off, hold the Power button until the LED turns off.

## Eyes and LED display

The LED will display Green if there is a ball in the breach, ready to fire. It will display Red if there is no ball in the breach. Press and release the Power button once to disable the eye. The LED will display Blue if the eyes are disabled.

## Eye modes:

### Normal mode – Eyes On:

When the marker is turned on the eyes are automatically enabled. The marker will not fire unless there is a ball fully seated in the chamber of the marker.

### Eyes Off mode:

To switch from normal mode into Eyes Off mode, press the Power button and the LED will turn blue. The marker will now fire at the Eye Off Rate of Fire (ROF). Eyes Off mode allows you to disable the eyes if they are malfunctioning during a game. If you want to see how fast you can dry fire your marker, use Demonstration Mode. Set Eyes Off mode to a lower value in case the marker's eyes fail on the field.

### Forced Shot:

To fire a single shot while there is no ball in the breach, and keep the eyes turned on, hold the trigger in for 1/3<sup>rd</sup> of a second. The marker will fire once and then the eyes will automatically turn back on. This is useful for clearing a ball that has rolled past the eyes or triggering a sound activated hopper.

### Training Mode

Training Mode – When the marker is Off, hold the trigger in and press and release the Power button. The LED will light up Purple. Release the trigger. This mode allows the user to practice firing the marker without it fully cycling. It is designed to be used with air, but it won't be as loud as a normal shot because the dwell is automatically cut in half. The trigger will behave like normal using the Eye On ROF cap allowing the marker to be shot indoors to practice walking the trigger. The marker will not fire in Training Mode if there is a ball in the breach.

### Demonstration Mode

Demonstration Mode – in Training Mode, press and release the Power button like turning the eyes off. The LED will light up Teal. It is designed to be used with air but it will fully cycle the marker using the Eye On ROF. The marker will not fire in Demonstration mode if there is a ball in the breach, but since it is shooting at full velocity, treat it as though it is loaded. Demonstration Mode is like Training Mode, but the marker will fully cycle. To switch back to Training Mode, press the Power button.

### Eye Error

If there a problem develops with the marker's eyes, the rate of fire will default to 8 bps (this is adjustable, see dip switch 3 settings below) and the LED will display Yellow. As soon as the eyes start functioning normally this will be detected and the rate of fire limit will be removed. The LED will blink Yellow even if the eye error has been cleared to later indicate there was a problem during the game. Turning the marker off will reset it so it no longer flashes Yellow. At anytime, the eyes can be turned off and the marker will default to the MROF Eyes Off setting.

### Low Battery Indicator

When the marker is first turned on, the LED will flash Red once to indicate a battery below 8.2v or flash Red twice to indicate a battery that needs changing immediately.

If the marker is inactive for 15 minutes, the battery saver function will activate and turn the marker off.

### Dip switch settings:

#### Dip switch 1 – Program Mode

To allow access to Program Mode set dip switch 1 to ON. To play in Tournament Lock mode, set dip switch 1 to Off.

#### Dip switch 2 – Anti-FSDO On

To access the Anti-First Shot Drop Off control, flip this dip switch to ON. These settings affect dwell and velocity during the game so read and understand the manual before adjusting it.

#### Dip switch 3 – Eye Fault Default

In the OFF position this switch caps the marker at 8 BPS when the eye detects a problem reading the paint and bolt movement. When set to ON, the marker will default to the Eye Off Rate of Fire when the eye is no longer correctly reading the paint and bolt movement.

#### Dip switch 4 – Inactive, doesn't affect marker.

### Program Mode

To enter Program Mode set dip switch 1 to ON. Then turn the marker on while holding the trigger. Continue to hold the trigger until the LED starts to flash different colors. Release the trigger, the LED should display solid Purple.

To cycle through the programming options, pull and release the trigger. The LED will change colors to correspond to the different setting options. To indicate which option you are changing, the LED will display a solid color, a strobe color which will blink rapidly or a pulse color which will blink steadily.

Display Color	Option	Range	Default
Solid Purple	Quickstart Modes	1 to 7	NA
Solid Teal	Eye Sensitivity	1 to 20	6
Solid Red	Dwell	1 to 40	12
Solid Blue	Anti FSDO	1 to 19	2
Blue Strobe	FSDO Time	1 to 30	5
Solid Green	Debounce	1 to 20	4
Green Strobe	Anti-MBounce	1 to 20	14
Green Pulse	DML	1 to 20	8
Red Strobe	Max ROF Eye On	1 to 30	1
Red Pulse	Max ROF Eyes Off	1 to 30	12
Purple Strobe	Fire Modes	1 to 6	1
Purple Pulse	Ramp Activation	1 to 20	10
Teal Strobe	Safety Shots	1 to 12	3
White Strobe	Ramp Time Out	1 to 9	1

### To change a setting:

Select an option and pull and hold the trigger. Wait for the LED to briefly turn off and then blink a number of times to indicate the current setting. To keep the setting, release the trigger and wait a few seconds.

To input a new setting, wait for the LED to stop blinking, release the trigger and pull the trigger the number of times corresponding to the desired setting. The LED will blink green each time the trigger is pulled. The LED will blink Red if a setting outside the adjustable range is selected.

If the new setting was accepted, the LED will blink the new setting number then flash multiple colors to show it has been accepted. If the value you have entered is invalid, the option will not be accepted and the LED will not flash different colors. Enter a valid setting within the adjustable range. Turn the marker off or cycle through the options to change more settings.

To exit setup mode and turn off the marker, hold the power button until the LED turns off.

### Programming Options

Solid Purple	Quickstart Modes	1 to 7	Default = not set
1 – NPPL	Semi (uncapped)		
2 – CFOA	Semi (capped at 15 bps)		
3 – PSP	Ramp (capped at 15 bps)		
4 – Millennium	Ramping (capped at 15 bps slow start)		
5 – NXL	Full Auto (capped at 15bps)		
6 – Response	Response with one Safety Shot – cap 20bps		
7 – Full Auto	Full Auto with one Safety Shot – cap 20bps		

**Warning:** Changing these settings will change several settings at once on the marker. To simply change the fire mode, use the setting: Fire Mode. To see what each of the Quickstart settings will adjust, see the Quickstart Chart on the next page.

### Problems, Complaints or Questions:

Email [tech@lucky-paintball.com](mailto:tech@lucky-paintball.com)

**Solid Teal Eye Sensitivity** 1 to 20 Default = 6  
 This setting adjusts the marker to the hopper. The faster the hopper, the lower the Eye Sensitivity can be set. This compensates for the different positions various manufacturers use for the eyes. For example, Angels and Egos use a higher position and often need a slightly higher Eye Sensitivity setting. This is not a delay, merely a better fusion of advanced electronic control and physical eye layout.

**Solid Red Dwell** 1 to 40 milliseconds Default = 12  
 The dwell setting controls the duration in milliseconds of the signal sent to the solenoid. Higher dwell can lead to high or even unsafe velocity. Always use a chronograph after adjusting dwell.

**Solid Blue First Shot Drop Off (FSDO)** 1 to 19 Default = 2  
 Dip switch 2 must be up for this setting to take effect for safety reasons. This setting determines the amount of time (in ms) that is added on to the dwell after a period of inactivity (set below in FSDO Time). 1 = 1 ms. 2 = 2 ms. . . 19 = Off. Higher dwell can lead to high or even unsafe velocity. Always use a chronograph after adjusting this option.

**Blue Strobe FSDO Time** 1 to 30 Default = 5  
 Dip switch 2 must be up for this setting to take effect for safety reasons. This sets the length of time in 15 second increments that the marker must be inactive for, before the dwell is increased to combat First Shot Drop Off (FSDO).

**Solid Green Debounce** 1 to 2 Default = 4  
 This setting controls how aggressively the chip filters for electronic switch bounce. A higher value makes it less likely that multiple shots are fired for a single trigger pull.  
 Note: Do not test for bounce with the eye off. It will not give an accurate reading. Use paint and a hopper at proper velocity to correctly test for bounce.

**Green Strobe Anti-Mechanical Bounce** 1 to 20 Default = 14  
 This setting controls how much the system filters mechanical bounce. A higher value makes it less likely to shoot more than one shot or “bounce” especially when firing slowly. Also called MBounce.

**Green Pulse DML** 1 to 20 Default = 8  
 This setting controls what is identified as mechanical bounce. Increasing this setting means the system is more likely to pick up Mechanical bounce and filter it. Stands for Debounce Mechanical Bounce Limiter.

**Red Strobe MROF Eyes On** 1 to 30 Default = 1  
 Controls the maximum rate of fire cap while the eyes are on.

Setting	Value	Setting	Value
1	Uncapped	9	9 bps
2	15 bps	10	10 bps
3	15.1 bps	11	11 bps
4	15.2 bps	12	12 bps
5	15.3 bps	13	13 bps
6	15.4 bps	14	14 bps
7	15.5 bps	15 – 29	15 – 29 bps
8	15.6 bps	30	30 bps

**Red Pulse MROF Eyes Off** 1 to 30 Default = 12  
 Adjusts the Maximum Rate of Fire the marker can shoot with the eyes disabled. Same adjustment settings as MROF Eyes On. To set the marker to use the MROF Eyes Off setting when there is an Eye Error instead of the default of 8 bps – make sure dip switch 3 is ON.

**Purple Strobe Fire Modes** 1 to 6 Default = 1  
 This setting changes between 6 different fire modes. Unlike Quickstart, it will only change the fire mode. Every setting except Semi and Semi Breakout are controlled by the following three settings: Ramp Activation, Safety Shots and Ramp Time Out.

Setting	Setting
Setting 1 Semi	Setting 4 Full Auto
Setting 2 Ramp	Setting 5 Semi breakout
Setting 3 Response	Setting 6 Ramp breakout

**Purple Pulse Ramp Activation** 1 to 20 Default = 10  
 Number of trigger pull second needed to activate and sustain mode. Setting adjusts in 0.5 trigger pulls per second increments.

**Teal Strobe Safety Shots** 1 to 12 Default = 3  
 This setting controls how many shots must be fired in semi mode before fire mode is activated. PSP and NXL require 3 shots.

**White Strobe Ramp Time Out** 1 to 9 Default = 1  
 This is the number of seconds (adjustable from 1 to 8) that the marker can pause between bursts of fire before the marker will be forced to shoot the Safety Shots again (adjustable above). PSP and NXL require 1 second. When set to 9, Ramp Time Out instantly turns off as soon as the marker falls below the minimum trigger pulls per second requiring the Safety Shots to be shot again.

**Breakout Modes**

**Semi Breakout** – Ramps on the first trigger pull when turned on. Degree of ramp is controlled by the Safety Shots value. A higher setting will create a more obvious ramp.

**Ramp Breakout** – Cancels out the Safety Shots so the marker ramps right away on the first trigger pull when turned on.

**Reset to Factory Defaults**

Set dip switch 1 to ON for Program Mode.

Hold the trigger and turn the marker ON like entering Program Mode. The LED will turn Purple (if the trigger is released now it would enter Training Mode).

Continue holding the trigger and it will start cycling through the led colors (if the trigger is released now it would enter Program Mode). Keep holding the trigger and the LED will go off after 15 seconds. Now release the trigger. From the time the trigger is released, the trigger must be pulled again in less than 2 seconds to restore defaults. If the trigger is not pulled, the current settings will be kept and the marker will simply turn off.

**Quickstart Chart**

Quickstart Modes changes each of these settings to these values on the board automatically. All Quickstarts will automatically raise the Mbounce to 14 and the Debounce to 4 if either is set lower. All other settings and values will remain set where they were. All

settings can be adjusted afterwards like normal so any of these Quickstarts can be adjusted after they are set.

**NPPL Quickstart Adjusts:**

Maximum Rate of Fire Eyes On	1	uncapped
Maximum Rate of Fire Eyes Off	14	14bps
Fire Mode	1	semi

**CFOA Quickstart Adjusts:**

Fire Mode	1	semi
Maximum Rate of Fire Eyes On	2	15bps
Maximum Rate of Fire Eyes Off	14	14bps

**PSP Quickstart Adjusts:**

Fire Mode	2	ramp
Maximum Rate of Fire Eyes On	2	15bps
Maximum Rate of Fire Eyes Off	2	15bps
Ramp Activation	10	5 trigger pulls second
Safety Shots	3	3 shots
Ramp Time Out	1	1 second

**Millennium Quickstart Adjusts:**

Fire Mode	2	ramp
Maximum Rate of Fire Eyes On	2	15bps
Maximum Rate of Fire Eyes Off	2	15bps
Ramp Activation	15	7.5 trigger pulls a sec
Safety Shots	1	1 shot
Ramp Time Out	9	disabled

**NXL Quickstart Adjusts:**

Maximum Rate of Fire Eyes On	2	15bps
Maximum Rate of Fire Eyes Off	2	15bps
Fire Mode	4	Full Auto ramp
Ramp Activation	10	5 trigger pulls second
Safety Shots	3	3 shots
Ramp Time Out	1	1 second

**Preset Response Mode**

Maximum Rate of Fire Eyes On	20	20bps
Maximum Rate of Fire Eyes Off	2	12bps
Fire Mode	3	response
Ramp Activation	4	2 trigger pulls second
Safety Shots	1	1 shot
Ramp Time Out	9	disabled

**Preset Full Auto Mode**

MROFON	20	20bps
MROFOFF	12	12bps
Fire Mode	4	Full Auto
Ramp Activation	10	5 trigger pulls second
Safety Shots	1	1 shot
Ramp Time Out	3	3 seconds

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## Examples of how to change settings:

### To set PSP Mode:

1. Set dip switch 1 to ON.
2. Turn the marker on while holding the trigger. Continue to hold the trigger until the LED starts to flash different colors.
3. Release the trigger, the LED should be solid Purple. This is the Quickstart Fire Mode. This will change multiple settings at once.
5. Pull and hold the trigger. The number of flashes is irrelevant.
6. Pull the trigger 3 times. This will set all of the settings listed below at once so they are PSP legal.
7. The LED will blink green each time the trigger is pulled. If the new setting was accepted, the LED will blink the new setting number then flash multiple colors. Turn the marker off or change more options.

This will set:

Fire Mode - 2 (ramp)

Maximum Rate of Fire Eyes On - 2 (15bps)

Maximum Rate of Fire Eyes Off - 2 (15bps)

Ramp Activation - 10 (5 trigger pulls per second or tpps)

Safety Shots - 3

Ramp Time Out - 1 (1 second)

8. To exit setup mode and turn off the marker, hold the power button until the LED turns off.

### To set PSP mode with an uncapped Rate of Fire:

1. Follow steps 1 through 7 above.
2. Pull and release the trigger 8 times quickly to get to Rate of Fire Eyes On mode (Red Strobe).
3. Pull and hold the trigger. It should flash red twice to indicate the cap is set at 15bps.
4. Pull the trigger 1 time.
5. The LED will blink green each time the trigger is pulled. If the new setting was accepted, the LED will blink the new setting number then flash multiple colors. Turn the marker off or change more options.
6. To exit setup mode and turn off the marker, hold the power button until the LED turns off.
7. The marker is no longer PSP legal. It is now in PSP uncapped.

### To set Dwell to 20:

1. Set dip switch 1 to ON.
2. Turn the marker on while holding the trigger. Continue to hold the trigger until the LED starts to flash different colors.
3. Release the trigger, the LED should be solid Purple. This is the Quickstart Fire Mode.
4. Pull and release the trigger three times quickly to get to Dwell mode (Solid Red).
5. Pull and hold the trigger. The number of Red flashes is the current Dwell. If it flashed 20 times, Dwell is already set to 20. Turn marker off.
6. If the Dwell flashes any other number, wait for it to finish flashing and then pull the trigger 20 times.
7. The LED will blink green each time the trigger is pulled. If the new setting was accepted, the LED will blink the new setting number then flash multiple colors. Turn the marker off or change more options.
8. To exit setup mode and turn off the marker, hold the power button until the LED turns off.

### To set Debounce to 3:

1. Set dip switch 1 to ON.
2. Turn the marker on while holding the trigger. Continue to hold the trigger until the LED starts to flash different colors.
3. Release the trigger, the LED should be solid Purple. This is the Quickstart Fire Mode.
4. Pull and release the trigger six times quickly to get to Debounce mode (Solid Green).
5. Pull and hold the trigger. The number of Green flashes is the current Dwell. If it flashed 3 times, Debounce is already set to 3. Turn the marker off.
6. If the Debounce flashes any other number, wait for it to finish flashing and then pull the trigger 3 times.
7. The LED will blink green each time the trigger is pulled. If the new setting was accepted, the LED will blink the new setting number then flash multiple colors. Turn the marker off or change more options.
8. To exit setup mode and turn off the marker, hold the power button until the LED turns off.

**Being the helpful guys we are, we made a quick cheat sheet in the next column. Print it out and keep it in your gear bag for the next time you want to change settings at the field.**

### Display Color

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Green	Ball in breach
Red	No ball in breach
Blue	Eyes Disabled
Purple	Training Mode
Teal	Demonstration Mode
Yellow	Eye Error
Blinking Yellow	Corrected Eye Error

Program Color	Option	Range	Default
Solid Purple	Quickstart Modes	1 to 7	NA
Solid Teal	Eye Sensitivity	1 to 20	6
Solid Red	Dwell	1 to 40	12
Solid Blue	Anti FSDO	1 to 19	2
Blue Strobe	FSDO Time	1 to 30	5
Solid Green	Debounce	1 to 20	4
Green Strobe	Anti-MBounce	1 to 20	14
Green Pulse	DML	1 to 20	8
Red Strobe	Max ROF Eye On	1 to 30	1
Red Pulse	Max ROF Eyes Off	1 to 30	12
Purple Strobe	Fire Modes	1 to 6	1
Purple Pulse	Ramp Activation	1 to 20	10
Teal Strobe	Safety Shots	1 to 12	3
White Strobe	Ramp Time Out	1 to 9	1

### QuickStart Modes

Program Color	Option	Range	Default
Solid Purple	Quickstart Modes	1 to 7	NA
1 – NPPL	Semi (uncapped)		
2 – CFOA	Semi (capped at 15 bps)		
3 – PSP	Ramp (capped at 15 bps)		
4 – Millennium	Ramping (capped at 15 bps slow start)		
5 – NXL	Full Auto (capped at 15bps)		
6 – Response	Response with one Safety Shot – cap 20 bps		
7 – Full Auto	Full Auto with one Safety Shot – cap 20bps		

### ROF Chart

Program Color	Option	Range	Default
Red Strobe	Max ROF Eye On	1 to 30	1
Red Pulse	Max ROF Eyes Off	1 to 30	12
Setting	Value	Setting	Value
1	Uncapped	9	9 bps
2	15 bps	10	10 bps
3	15.1 bps	11	11bps
4	15.2 bps	12	12bps
5	15.3 bps	13	13bps
6	15.4 bps	14	14bps
7	15.5 bps	15 – 29	15 – 29 bps
8	15.6 bps	30	30 bps

### Fire Modes

Program Color	Option
Purple Strobe	Fire Modes
Setting 1	Semi
Setting 2	Ramp
Setting 3	Response
Setting 4	Full Auto
Setting 5	Semi breakout
Setting 6	Ramp breakout

### Dip switches

- 1 – On = Program Mode
- 2 – On = FSDO Active
- 3 – Off = Eye Error 8bps
- 4 - Inactive

## Glossary:

### Fire Mode Definitions:

Every setting except Semi and Semi Breakout are controlled by the following three settings: Ramp Activation, Safety Shots and Ramp Time Out.

Semi – Semi-Automatic – Shoots one ball per trigger pull. Debounce, MBounce and DML settings may cause occasional double fires if set too low.

Ramp – Assisted mode which shoots multiple balls per trigger pull. Safety Shots, Ramp Activation and Ramp Time Out settings are used to fully configure how many shots must be shot before burst kicks in, how many trigger pulls per second must be fired to activate then sustain the burst and how long the marker can pause between strings before the safety shots must be shot again. DML and Debounce are turned off in Ramp Modes.

Response – Fires on the trigger pull and release. Safety Shots, Ramp Activation and Ramp Time Out settings apply. DML and Debounce are turned off in Response Mode.

Full Auto – Holding down the trigger will continuously shoot the marker. Safety Shots, Ramp Activation and Ramp Time Out settings apply.

Semi Breakout – Ramps on the first string then reverts to semi-automatic. Ramp Time Out settings apply on the first string. Ramping burst is controlled by Safety Shots so a high number of shots means more shots will be fired with each pull and therefore a more obvious ramp.

Ramp Breakout – Shoots using Ramp settings but with no safety shots on the first string. Ramp Activation and Ramp Time Out settings apply. Safety Shots settings apply on subsequent strings.

### Complete Glossary of Terms

ABS – Anti-Bolt Stick – See FSDO.

BIP – see Eye Sensitivity.

BPS – Balls per second. Many tournament leagues put a maximum rate of fire cap on markers. That cap is measured in balls per second. BPS is also used as a unit of measure to set the maximum rate of fire with the eyes off.

Breakout – Semi Breakout – Mode of fire that ramps when first turned on then goes back to the normal firing mode. These modes are not tournament legal.

CFOA – Carolina Field Owner’s Association – Tournament League that limits rate of fire to 15bps and the marker to semi-auto only.

Debounce – How the gun filters the unwanted additional electronic signals coming from the microswitch when the gun is firing fast.

Demonstration Mode – Mode of fire that does not shoot paintballs. It is designed to simulate shooting paint so it is perfect for in store

demonstration or test firing the marker in the staging area. It uses the marker’s current settings for more accurate demonstration.

Dip switch – Small switches located on the board itself.

Dip switch – Small switches located on the board itself.

DML – Debounce Mbounce Limiter – Controls how the system identifies mechanical and electronic bounce.

Dwell – Dwell – Duration of the pulse sent to the solenoid. Controls how long the solenoid stays open. Longer dwell means potentially higher velocity. Too low a dwell will not cycle the marker properly.

Eye Sensitivity – This setting adjusts the marker to the hopper. The faster the hopper, the lower the Eye Sensitivity can be set. If the marker seems to pause at times between strings, it means the automatic Eye Sensitivity is kicking in because the hopper is not fast enough to keep up.

Eyes Off Mode – In this mode the marker will fire without checking to see if there is a ball in the breach. This mode should only be used if there is a problem with the eyes. Also called dry firing.

Eyes On Mode – Normal Mode – Default mode when marker is turned on. Checks to make sure a ball is in the breach before firing. Will not fire when no ball is present.

Forced Shot – Allows a single shot to be fired without a ball in the chamber with the eyes on by simply holding the trigger in. Useful for clearing a ball that has rolled off the eye.

FSDO – First Shot Drop Off – A low velocity first shot or series of shots. Sometimes these are so low the shot does not even leave the barrel.

Gangster Mode – see Breakout.

LBI – Low Battery Indicator – LED will flash to indicate the battery is getting low.

LED – Light-emitting diode – This is the light on the marker that lights up when the marker is on. The LED acts as a feedback display for the marker.

MBounce – Anti Mechanical Bounce – Anti-Mechanical Bounce and Mechanical bounce are used interchangeably. This setting adjusts the

Membrane Pad – Optional plug in Power Button that also has a separate Eye button. Requires purchase of both a Membrane Wiring Harness as well as a Membrane Pad.

Millennium – European tournament series with a capped rate of fire and specific ramping rules that change often. Check current rules before playing. There’s a good chance they changed some of them the night before.

Nitro Mode – see Breakout.

NPPL – National Paintball Player’s League – National tournament series that allows uncapped rate of fire but only in semi mode. The NPPL hosts both Amateur and invitation only Professional teams at the same venue with the same rules.

NXL – National X-Ball League – These tournaments are only open to professional teams by invitation and are played at the same time and at the same venue as the PSP tournaments, but with slightly different rules. Longer games and fully automatic markers are two of the changes.

Program Mode – Non-firing mode that allows the user to adjust all settings. Opening the grip panel and flipping the dip switch 1 to ON allows access to Program Mode.

PSP – Paintball Sports Promotions – Tournament series that runs X-Ball and 5-Man tournaments around the country. They play with a cap of 15 bps with 3 Safety shots and a Ramp Time Out of 1.

Pulse – Steady blinking light used to denote certain settings in program mode.

Ramp – Mode of fire that shoots several ball per trigger pull.

Ramp Time Out – Adjustable length of inactivity time that begins immediately after the last trigger pull

Response – One ball is shot on the pull and one on the release of the trigger.

ROF – Rate of Fire. The speed the marker can shoot measured in balls per second (bps).

Safety Shots – These are the shots needed before the Fire Mode kicks in. This way if the marker is dropped or the trigger is accidentally pulled, it will just shoot once.

Semi – Semi-Auto – One ball is shot per trigger pull.

Strobe - Fast blinking light used to denote certain settings in program mode.

Tournament Lock – Locks the marker out of Program Mode by flipping dip switch 1 to OFF so settings can not be changed through the trigger. Opening the grip panel and flipping dip switch 1 to ON allows access to Program Mode again.

TPPS – Trigger Pulls Per Second – Generally the number of trigger pulls per second needed to activate a mode.

Training Mode – Mode of fire that does not shoot paintballs because it does not fully cycle the marker as it is being shot. It is perfect for sitting on the couch and practicing pulling the trigger without all the loud noise. It uses marker’s current settings for more accurate practice.

Uncapped – Unlimited maximum rate of fire governed by how fast your hopper can feed and how fast the marker can load a ball.