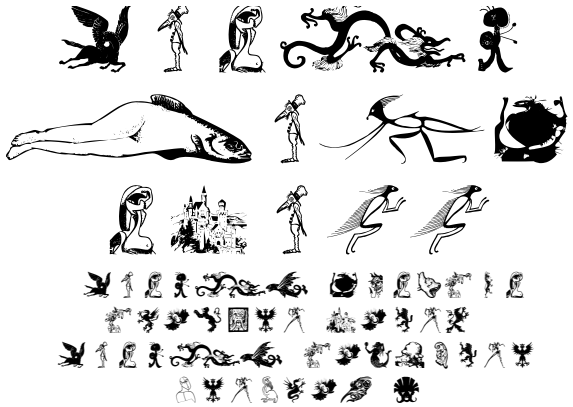

Features:

- Designed from the ground up for both the Shocker SFT and Shocker NXT.
- The first ever paintball circuit board with a fully integrated **wireless transceiver**!
- Fully compatible with all SYMBIO wireless products.
- Includes 22 firing modes including fully customizable ramp modes.
- Compatible with both reflective and break-beam Shockers.
- Proprietary multi-tasking algorithms continuously monitor all trigger and eye events to ensure that all pulled shots register and are processed.
- **TEN TIMES** faster than the top-ranked competitor! This translates to **900,000** more operations per second than anyone else.
- Gold plated leads ensure rock solid intra-circuit communication.
- Fully adjustable ABS features add to the marker's dwell to eliminate that pesky first shot drop-off.
- Anti-mechanical bounce (AMB) algorithms solve the problem of physical switch bounce. No need to worry when the refs pull that old slow trigger pull trick on your gun.
- A "forced shot" feature allows the user to clear the marker of eye faults.
- Instant on feature. After all, you wanna play now!
- Instantaneous battery status.
- Tournament lock feature allows the user to "lock out" the programming mode in order to meet specific field/tournament guidelines.

Installation:

MAKE SURE THE MARKER IS NOT CONNECTED TO AN AIR SOURCE AND DOES NOT HAVE PAINTBALLS IN THE BREACH DURING INSTALLATION!!!!!!

1. Remove the screws that secure the grips. This will expose the board.
2. Carefully remove the two pins behind the trigger. These pins go through the microswitch and mount the circuit board to the frame.
3. Unplug the battery and wiring harness from your old board.
4. Plug the wiring harness into your new HATRED board.
5. Carefully place the new HATRED board into your frame and reinsert the mounting pins through the microswitch.
6. Attach a fresh 9v battery and insert the battery into the frame. Make sure the leads from the battery are tucked away from the circuit board and towards the rear of the frame. **Be very careful not to scratch the back of your circuit board with the battery. Circuit boards which are damaged due to incorrect installation are not covered under warranty.**
7. Replace grips.
8. **VERY IMPORTANT.** Enter the programming menu and set your eye type (break-beam or reflective) before you use the marker. Please see the "programming" and "eye sensor operation" headers on how to do this.
9. Power on and play!

LED's:

The HATRED gun board has two LED's. The **button LED** is a single color, blue LED that is seen through the Shocker's rear button. The **onboard LED** is a multi-color LED that is physically mounted on the bottom of the HATRED Shocker board. We suggest using translucent grips so you can see the onboard LED as it makes the programming and operation of your marker much easier.

Power:

Power On: The HATRED board comes equipped with an Instant On feature. Simply press the power button and your marker will instantly power on. As long as the power button is depressed, you will see a flickering **GREEN** or **RED** led on the Onboard LED. The **GREEN** indicates a good battery and the **RED** means replace the battery as soon as possible. Regardless of GREEN/RED battery indication, your marker **WILL REGISTER YOUR FIRST TRIGGER PULL!** Please be careful!

Power Off: To turn the marker off, press and hold the button for two seconds. As the gun powers down, the onboard LED will go through a rainbow power down sequence. Please note that this particular rainbow LED sequence does NOT indicate that you're entering the programming menu.

Programming

The bottom dip switch must be in the OFF position in order to enter the programming menu. If the bottom dip switch is ON, "tournament lock" will be enabled and the user will be unable to program the marker.

To enter the programming menu, hold the trigger down and THEN turn the marker on. The onboard LED will inform the user that the programming mode has been accessed by flashing several colors rapidly.

LED Color	Setting	Default Setting	Adjustable Range
Purple	Fire Mode	1	1-22
Green	Debounce	5 ms	1-50 ms
Red	Dwell	14 ms	5-35 ms
Blue	Max ROF	20 cps	10-35 cps
Teal	AMB	1 ms	1-60 ms
Yellow	Eye Delay	4 ms	1-20 ms
White	Wireless Address	1	1-32
Flickering Purple	ABS	10 ms	1-20 ms
Flickering Green	Ramp Activation	9 bps	6-15 bps
Flickering Red	Ramp Percent	10%	1-20 (10-200%)
Flickering Blue	Reset	n/a	n/a
Flickering Teal	Eye Type	1	1➠Breakbeam 2➠Reflective

1.) Pulling and releasing the trigger will allow the user to toggle through the different programming options.
2.) Once the desired setting/LED color is reached, pull and hold the trigger to select that setting. The onboard LED will then go blank.
3.) Once the onboard LED goes blank, pull the trigger for the desired setting. For example, if the user wishes to set the debounce to 2, he or she must pull the trigger two times.
➠If the user wants to view their current value for a particular setting, he or she need only to continue holding the trigger in after the setting is selected from the menu. The software will then blink back the user's current value for that particular setting.
4.) The software will indicate that the new value has successfully been entered by blinking the value back to the user then rapidly flashing the LED through a spectrum of colors.
➠As the software blinks back the new setting, the user may abort this process by simply clicking the trigger once. The new settings will still be saved.
5.) After a setting has been changed, the user may change another option or power the gun off to save the settings.

NOTE: All "programming clicks" correspond exactly to their settings. If you want to cap the ROF at 15, pull the trigger 15 times. If the user sets the value too low (2 cps ROF cap for example), the software will automatically default to the lowest accepted value. The inverse is also true for user inputs which are beyond the adjustable range.

Programming Examples:

To set the firing mode to PSP mode.
1. Turn the marker off.
2. Hold the trigger down; then turn the marker on. Once the LED flashes many colors, release the trigger.
3. Tap the trigger until the LED turns purple.
4. Hold down the trigger until the LED goes blank.
5. Tap the trigger two times.
6. Once the LED flashes many colors, turn the marker off.

To set the eye type to reflective.
1. Turn the marker off.
2. Hold the trigger down; then turn the marker on. Once the onboard LED flashes many colors, release the trigger.
3. Tap the trigger until the onboard LED turns flickering teal.
4. Hold down the trigger until the LED goes blank.
5. Tap the trigger 2 times.
6. Once the LED flashes many colors, turn the marker off.

To set the max ROF to 15 bps.
1. Turn the marker off.
2. Make sure the top dipswitch (dipswitch 1) is in the ON/UP position.
3. Hold the trigger down; then turn the marker on. Once the LED flashes many colors, release the trigger.
4. Tap the trigger until the LED turns blue.
5. Hold down the trigger until the LED goes blank.
6. Tap the trigger 15 times.
7. Once the LED flashes many colors, turn the marker off.

Dip Switch Settings:

Switch	UP	DOWN
1 (top)	ROF Cap ON	ROF Cap OFF
2 (bottom	Tournament Lock	Programming Mode

Eye Sensor Operation:

The Shocker HATRED board supports both SFT reflective eyes and NXT break-beam eyes. **Before you play with your marker, you must go into the programming menu and set your eye type.** Failure to do this will result in extremely undesired performance and potentially dangerous and unsafe operation. Hater Paintball LLC simply cannot be held responsible for accidents resulting from the user's failure to correctly set their eye type.

To set your eye type, enter the programming menu and scroll to the flickering teal onboard LED. Hold your trigger in until the onboard LED goes blank. Click the trigger ***once if you have an NXT with break-beam eyes* or *twice if you have an SFT with reflective eyes***. The onboard LED will flash through several colors to signify that the change was accepted.

When the HATRED Board is powered on, the eyes are enabled by default. To disable the eyes, press and hold the eye button on your marker for ½ of a second.
➠When the eyes are disabled (blinking red onboard LED), your ROF will default to the user programmed global ROF cap.
➠When there is an EYE FAULT (blinking blue onboard LED), your ROF will automatically default to 15 cps.

Onboard LED Representation:

Solid Blue	Eyes on; Paint in breach.
Blinking Blue	Eyes on w/ blocked/dirty error.
Solid Red	Eyes on; No paint in breach.
Blinking Red	Eyes disabled.

Button LED Representation:

Solid Blue	Eyes on; Paint in breach.
Blinking Blue	Eyes on w/ blocked/dirty error.
Flickering Blue	Eyes on; No paint in breach.
Flickering/Flashing Blue	Eyes disabled.

Firing Modes:

(Please note the firing mode order on the back of the HATRED box does not correspond the actual mode order.)

1. **Semi Auto/NPPL** – 1 trigger pull = 1 shot fired.
2. **PSP Mode** – The first three shots are semi auto. On the 4th shot, the gun will shoot in 3 shot bursts. This burst mode will continue as long as the trigger is being pulled. After a one second delay of trigger inactivity, the 3 shots semi-auto sequence will restart.
   ➠The global ROF cap must be set to 13 to cap the marker at 13.33 bps to comply with PSP rules.
3. **NXL** – The first three shots are semi auto. On the 4th shot, the user may hold in the trigger and the gun will shoot in full auto until the trigger is released. After a one second delay of trigger inactivity, the 3 shots semi-auto sequence will restart.
   ➠The global ROF cap must be set to 13 to cap the marker at 13.33 bps to comply with NXL rules.
4. **Millennium** – Ramping mode specifically designed for Europe's Millennium Series.
5. **Ramping** – Uses a linear ramping algorithm to increase your rate of fire. You can choose when you want your marker to start ramping and how fast your marker will ramp.
   ➠The ramp deactivation is always 2 bps lower than the ramp activation.
   ➠Each "programming click" corresponds to a 10% increase in ramping speed. Eg: 1 click = 10%, 10 clicks = 100%, 20 clicks = 200%
   ➠The ramping percentage and ramp activation settings in the programming menu are GLOBAL settings. Any other firing mode which has a ramping subroutine will use the ramp activation and percentages as dictated by the programming menu.
6. **PSP Style Ramping** – The first three pulls are semi auto. On the 4th shot, the marker will fire in ramping mode. After a one second delay of trigger inactivity, the three shot semi-auto will restart.
7. **PSP Style Auto Response** - The first three pulls are semi auto. On the 4th shot, the marker will fire in Auto Response mode. After a one second delay of trigger inactivity, the three shot semi-auto will restart.
8. **Semi/Ramping Transition** – The first three shots are semi auto; the marker then converts to ramping mode.
9. **Ramping/Semi Transition** – For the first 300 pulls, the marker will be in ramping mode; after the 300th pull, the marker will convert to semi auto.
10. **Musket Ball Mode** – This is essentially a dwell ramp mode. The user must hold in the trigger to "charge" their marker. The gun actually fires on the trigger release. When the trigger is first pulled and held down, the software will start at the user set dwell (8 ms default) minus 10 ms. Over the course of five seconds, the software will add 2 ms of dwell up to the user set dwell for every second the trigger is continually depressed. After 5 seconds, the marker will be fully charged.
    ➠If the user just pulls the trigger and immediately releases, the paintball probably won't make it out of the barrel; if the user holds the trigger for 3 seconds, the velocity of the paintball will be extremely low, etc.

Wireless Operation:

The hardware on the HATRED board was developed with two prime concerns: overall speed and wireless expandability. Your HATRED board comes equipped with a high-performance wireless transceiver which is fully capable of an almost unlimited array of wireless applications. The board you just purchased is wholly capable of computer and PDA synchronization, wireless "intellifeeds," and statistical transmission and analyses.

The HATRED board comes pre-loaded with SYMBIO SYNC loader board software. To synchronize your HATRED board with your SYMBIO loader board:

1.) Turn on your SYMBIO loader and place it within twelve inches of your marker.
2.) Enter the programming menu on your HATRED board and select the white LED (wireless address select).
3.) Set your wireless address from 1-32.
4.) After the programming change is accepted, your SYMBIO board will pulse your motor once to signify that the change was accepted.
5.) Restart your HATRED board and say goodbye to old, reactive loader technology!

Definitions:

Debounce – The HATRED's debounce algorithm assists in eliminating unwanted shots caused by "trigger noise," while simultaneously ensuring that every pull is read. If the marker has intermittent or continuous "full auto" like fire, increase the debounce setting.
Dwell – Dwell is the amount of time that the solenoid is "charged." A dwell that is too low may result in a gun that doesn't fire, is inconsistent and/or has drop off. If the dwell is set too high, the overall rate of fire will decrease and the marker may become less air efficient. The factory default of 14ms should suffice for almost all Smart Parts markers.

Eye Delay – The eye delay is the amount of time the gun will pause after sensing a ball before it will fire. The stock eye delay of 4 ms is a conservative setting. On most guns, the Eye Delay can be lowered until the user experiences chopping. When using an agitated loader, the eye delay should be set to 5 ms or higher. The higher the eye delay, the slower the marker and less chance of paint breakage.

ABS – The Anti-Bolt Stick feature increases the dwell of the marker's first shot after a period of inactivity. The ABS feature assists in eliminating first shot drop-off. The higher the ABS, the "harder" the marker's first shot.

AMB – Anti-Mechanical Bounce feature assists the user in eliminating mechanical bounce. Mechanical bounce is caused by the marker recoiling. Increasing the AMB will assist in tuning your marker to pass those pesky slow pull tests.

EXTREMELY IMPORTANT: The AMB software in the HATRED Software Release 3 is different from any other AMB algorithm on the market. The AMB value which the user sets is actually the KICK IN TIME for the placement of a AMB window in the firing cycle. While the user sets the initiation value, the software automatically calculates the correct duration of the window itself. The faster the gun's firing cycle, the lower the AMB time. 25 ms is an ideal time for most Shockers. If your gun has bounce issues, please increase and decrease your AMB values by 2 ms increments until your AMB window is positioned correctly in your firing cycle and your bounce issues are eliminated. A higher AMB value does not mean the gun will bounce less!
Note: Setting your AMB value to 1 will disable AMB altogether

Max ROF – This feature allows the user to cap the maximum rate of fire of their marker. Some leagues, such as the PSP, require that guns not exceed 15.4 bps. The Max ROF feature is adjustable from 10-35 bps in 1 bps increments.
Note: Dip switch 1 must be ON for your ROF cap to be enabled.
IMPORTANT: We highly recommend leaving your Max ROF at 20 cps or below. Anything higher than this CAN blow your solenoid. Hater Paintball simply cannot be responsible for damaged solenoids.

Forced Shot – If the eyes are enabled, but the breach is empty, the user may force a shot by holding in the trigger for approximately one second. This feature is useful in the event that a ball has been pushed into the detents and is unreadable by the eyes. A forced shot will clear the breach and load the next paintball as normal.

Ramp Activation – This feature sets your ramp activation for all ramping modes. Your ramping will not kick in until this activation point has been reached. A lower ramp activation "kicks in" easier than a high activation.
Note: The ramp deactivation is always two bps less than the ramp activation.

Ramp Percentage: This applies to all ramping modes and tells your gun how fast to ramp. The higher the setting, the faster your marker will shoot.

Factory Default Reset: To reset all settings back to their factory defaults, go into the programming menu and select the flickering blue LED. Click the trigger once to reset everything back to its factory default value.

Warranty:

The HATRED gun board is warranted free from any and all manufacturing defects or software bugs for a period of one year from the purchase date of the product.

Problems caused by customer negligence are not covered under warranty. "Negligence" includes, but may not be limited to, using batteries other than a single Alkaline 9V, breaking components off the board, and other improper usage.

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