



SPIRE III™

VIRTUE 

BUILT TO WIN

PAINTBALL LOADER

SPIRE III MANUAL

Thank you for purchasing the Virtue Spire III™ paintball loader. This manual covers all aspects of your Spire III loader. It is recommended you read the whole manual as it contains important product and safety information.

QUICK SETUP //

To start using the Spire III™ immediately install 3 AA batteries. The LED indicator shows the following information during normal operation.

- **BLUE**, loaded and ready.
- **RED**, not loaded, add paintballs.
- **YELLOW** during startup, low battery.
When your Spire III starts with low batteries, it will automatically enter the power save mode until fresh batteries are installed. Power save mode prolongs battery life by shutting down Reload Indicator and LEDs. The LED will occasionally flash green to let you know it's on.
- **GREEN** blinking once every 2.5 seconds is in power save mode.

SPEC // *SPIRE III*™

LENGTH:	9.5"
WIDTH:	4"
HEIGHT:	3.9"
WEIGHT:	16oz
CAPACITY:	230 balls
BATTERIES:	3 x AA



It is recommended to download the Spire III App from the Google Play Store or Apple App Store and download the latest firmware settings to your Spire III. Many exciting features will be added to the App in the future.



WARNINGS

- * Always wear eye protection specifically designed for paintball.
- * Persons under 18 years of age should have adult supervision when using this product.
- * Only use projectiles designed for the sport of paintball such as paintballs or Reballs™.
- * Misuse of paintball equipment can cause serious injury or death.

BATTERY INSTALLATION //

The Spire III™ uses **3 AA** batteries. To install them follow these steps:

- 1 Open top shell by pressing unlock button on the back
 - 2 Remove Spire tray from shell by pinching the tray release tab between your thumb and forefinger and pulling the tray up.
 - 3 Open Velcro strip covering the battery slots and insert 3 AA sized batteries. Follow the markings on the bottom of the battery holder for correct polarity alignment. Tighten Velcro over the batteries to ensure they don't come loose during playing. Use high quality alkaline or lithium ion batteries. Using rechargeable batteries is not recommended and will cause performance issues.
 - 4 Insert Spire tray back into the loader and push down until black lock clicks into locked position.
 - 5 Close top shell by pushing it down until it locks in place.
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SOUND //

By default, the Spire III is muted. To turn on the speaker, with the Spire on, simply hold in the Force Feed button for 2 seconds. The Spire will beep the number of times the Reload Indicator Alarm is set to confirm you have turned on the Speaker. To mute the speaker, follow the same procedure and hold in the Force Feed button. The Spire III will remember your setting next time you turn on the Spire.

BASICS //

The Spire III uses an enhanced G-force sensor that detects the small recoil that occurs when shooting a paintball marker. The Spire III G-force sensor is isolated and mounted in a silicone anti-vibration housing to allow the sensor to perform better than on previous Spire loaders. During normal operation the Spire III spins Spire Drive forward until the stack is full. When the stack is full, software detects the increase in Drive Pressure through the motor and then stops. When a shot is fired the G-force sensor detects the shot and the Spire Drive is rotated forward until the stack is full again. The faster the gun is fired the faster the Spire Drive is rotated. When the Spire III is out of paint it will keep a slow rotation that saves battery life, minimizes balls bouncing inside the loader, and most importantly ensures balls loaded in will be fed all the way to the marker.

BATTERIES + LOW BATTERY INDICATOR //

The Spire III functions on 3 AA type batteries. For maximum feed and to prevent feeding or performance problems, please use fresh high quality batteries. It is recommended to use either alkaline or lithium ion type batteries. Do not use rechargeable batteries or cheap batteries like what may come with a TV remote control. These types of batteries are not suited for driving a motor. Do not use 9V batteries and do not exceed 5.5V input voltage. Always recycle used batteries according to the manufacturer's instructions.

There is a built in Low Battery Indicator (LBI) on the Spire III. When turning on the Spire III with good batteries the LEDs will turn to either red or blue depending if you have paint inside the loader or not. If the batteries are low you will hear 3 short beeps and LED will stay solid yellow for 3 seconds. When the loader is in LBI mode, the LEDs automatically shut off to conserve power and maximize performance. They will occasionally blink yellow to warn you need to replace the battery. At this point you should change your batteries. Because not all batteries put out a consistent voltage, sometimes your batteries may need to be replaced without the Low Battery Indicator going off.

BATTERY LIFE //

The life of batteries varies very much depending on the type of batteries used, temperature, environmental conditions, firing rate of the marker and the time used to fire the shots. As a general rule of thumb 1 set of batteries should last about 20,000 shots or 1 year.

ELECTRONIC FORCE FEED / PROGRAMMING / MUTE BUTTON //

The button on bottom of Spire III serves several functions. When the Spire III is on, it serves as an electronic force feed button. Pressing the button causes the loader to feed forward.

When you hold the Force Feed button in for 2 seconds, it unmutes or mutes the speaker. The Spire III is muted by default and remembers your previously saved setting.

The Force Feed button also allows you to enter the Spire III Programming Menu by holding this button in when you turn the Spire on, then releasing it after the Spire starts up.

REBALLS //

The Spire III was designed to be very reliable and easy on paintballs. This allows it to function with Reballs or similar projectiles. Making sure the Reballs used are clean before loading them into the Spire III will improve reliability.

If you are using Reballs, you should turn off the Auto Mode in the Yellow Drive Pressure setting. Set the Yellow setting to a value of 3 or higher. Due to the very high friction of Reballs the feed rate will be lower, wear on internal parts will increase, and battery consumption will be higher.

OPENING SHELL //

To open the Spire III shell simply press the lock button on the back of the Spire III. The top shell is spring loaded and will automatically lift up to the open position. To close just press down until there is a click sound.

REMOVE + INSTALL SPIRE TRAY //

Open the top shell first. Then locate the Tray Release Tab on the back the Spire tray. Push forward as indicated by the arrow on the lock and then pull the body tray up and out of the shell. To reinstall first align the front of the body tray under the front support inside the front of the loader. Then push down on the tray until it securely locks in place.



REMOVING LID + INSTALLING SPEED FEED //

The lid of the Spire III is installed using a quick mount system. To remove the lid open it to its open position. Using your finger press in the lock tab on the inside of the lid while pulling the lid out with your other hand. The lid will slide out. To install another lid, speed feed or another accessory simply push it in to the slot until it's locked in place.

REMOVE + INSTALL SPIRE DRIVE //

To remove the Spire Drive from the loader first open the Shell and remove the Spire tray. After that pull the Spire Drive straight up. It will come loose and you will be able to pull it away from the body. To re-install the Spire Drive, align one of the arms into the ball tray and rotate the Spire Drive a little. A magnetic lock will pull the Spire Drive in place and lock it automatically.



RACEWAY DISASSEMBLY //

The Spire III Raceway can be detached by unplugging the wiring harness from the motor and pressing the Raceway Removal Tab on the bottom of the tray then slide the Raceway and motor assembly down and out. To reinstall the Raceway, slide the back of the Raceway into the two slots first and then snap the Raceway Release tab back into place. Take care to Make sure the wiring harness is not pinched.



PCB ELECTRONICS PACKAGE REMOVAL //

The PCB electronics package can be removed after unplugging the motor and removing the Raceway. At the front of the tray gently bend each corner of the front tray PCB tabs away from the PCB and remove the PCB package. To reinstall the PCB slide the back of the PCB into the tray and then flex the front tray tabs around each side of the front of the PCB.



CLEANING + MAINTENANCE

There is no particular maintenance needed for the Spire III. Keeping it clean and using fresh batteries is all that is required. If you leave the Spire III unused for more than 6 months it is suggested to remove the batteries to avoid damage due to a possible leaking battery.

For normal cleaning of the Spire III, remove the Spire tray and set it aside. The shell can be washed under the sink using warm water and mild detergent. Do not use a dishwasher, boiling water or other strong chemicals as this can weaken the plastic. Remove the Spire III Drive from the tray and wash it like the shell.

Remove and clean the Raceway by hand. Generally, it's ok if the Raceway and motor assembly gets wet, but do not submerge it in water to prolong the life components.

The PCB Electronics Package can also be removed and cleaned by hand. Do not submerge the PCB in water. Clean the paint off the PCB using a cotton swab or paper towel. All of the electronics are conformal coated for weather and paint resistance, however prolonged exposure to paint will eventually corrode away the coating and damage the electrical components.

The programming menu can be accessed by turning the Spire III ON while holding in the Force Feed/Programming button on the bottom of Spire III and then releasing the Programming button. The LED will cycle through a rainbow of colors. The LED will stop on purple indicating you are now in the first programming setting.

Tapping the Programming button will toggle through the different programming settings. When the LED is lit for the setting you wish to adjust press and hold the Programming button until the LED begins to flash, and then let go. The LED will flash the number of times you want the new value to be set to. After you have set the new value, the LED will flash the number of times you have entered and then flash the rainbow of colors, returning to the color you have adjusted indicating that the new value has been saved. To exit the programming mode turn the Spire III off by pressing the on/off button.

RELOAD INDICATOR ALARM //

PURPLE

VALUES 1-4 / Default 2

This setting allows you to adjust the speaker alarm for the Reload Indicator. Regardless of what this is setting is set to, the Reload Alarm is muted by default. To turn on or to mute the speaker, while the Spire is on, simply hold in the Force Feed button for 2 seconds. The Spire will beep the number of times the Reload Indicator Alarm is set to confirm you have turned on the Speaker. The Spire III will remember your setting next time you turn on the Spire.

Setting 1 is OFF. The Spire III will not beep when the Reload Indicator activates.

Setting 2 is ON and will beep quickly beep 2 times when the Reload Indicator activates.

Setting 3 is ON and will beep quickly beep 3 times when the Reload Indicator activates.

Setting 4 is ON and will beep quickly beep 4 times when the Reload Indicator activates.

HEADS-UP

RELOAD INDICATOR LED ACTIVATION //**TEAL****VALUES 1-3 / Default 1**

When the Spire III Smart Ramp goes up, the Spire III Heads-Up Reload Indicator LEDs on both sides of the Spire will change their color to indicate when it's time to reload. Use this setting in conjunction with the Reload Indicator Alarm to fine tune how you want the Spire III to warn you to reload based on your style of play. The LEDs are positioned so they are not distracting while shooting, but just out of line of sight so you can see it with a quick movement of your head. When Reload Indicator is activated the LED colors are:

RED – if the Reload Indicator is activated: time to reload.

BLUE – if the Reload Indicator is not activated: your hopper is full.

Setting 1: Reload Indicator LEDs activate immediately after the Smart Spring Ramp goes up.

Setting 2: Reload Indicator LEDs activate after the Smart Ramp goes up and the motor spins 5 times

Setting 3: Reload Indicator LEDs activate after the Smart Spring Ramp goes up and motor spins 10 times.

G-FORCE SENSITIVITY //**RED****VALUES 1-7 / Default 4**

This setting allows you to adjust the sensitivity of the G-force sensor. Setting 1 is the least sensitive and setting 7 is the most sensitive.

Do not adjust this setting unless there is a problem with your Spire III, and you have already removed and cleaned the Spire Drive and are sure you have good batteries. Generally, you do not need to adjust this setting at all unless there is a problem.

If the Spire III is spinning too much causing pop-corning, you can lower the sensitivity. Please note, too high of a sensitivity can cause unwanted pop-corning, and too low of a sensitivity can cause the loader not to detect shots. It is only recommended to adjust this setting if absolutely needed.

DRIVE PRESSURE //

YELLOW**VALUES 1-8 / Default 1**

The Spire III features a new Automatic Drive Pressure monitoring logic that enables the loader to sense when to start and stop on its own.

Setting 1: (Default) Auto mode. In this mode, the loader will choose the best setting for current conditions.

Settings 2 – 7: Manual modes. The higher the value the more pressure the Spire Drive needs to feel before it will stop spinning. Lower numbers will make the Spire Drive stop easier when it feels pressure on the stack.

Do not adjust this setting unless there is problem with your Spire III, and you have already removed and cleaned the Spire Drive and are sure you have good batteries. If the Spire III stops spinning before the balls stack is full, you can raise this setting. Too high of a setting can cause unwanted pop corning, and too low of a setting can cause the Spire III to stop spinning too soon.

A Note on Reballs:

Because Reballs have a high amount of friction, you should not use the default Auto Mote, but turn the Drive Pressure setting to 4 or higher to ensure the Spire does not stop feeding the Reballs prematurely.

LED POWER SAVER //

GREEN**VALUES 1-3 / Default 1**

This setting allows you to turn the LEDs off. This can be useful for example when playing night games or if you want to conserve power.

Setting 1: Heads-Up LEDs are on. The LEDs automatically dim occasionally to 40% power when the loader is idle to conserve battery life.

LED POWER SAVER //

GREEN**VALUES 1-3 / Default 1**

Setting 2: Shuts off the LEDs entirely save to battery power.

Setting 3: Shuts off the LEDs save to battery power, but occasionally blinks green to let you know the Spire III is on.

FIRMWARE UPGRADE MODE //

FLICKERING BLUE**Then WHITE when entered.**

Enter this setting to perform a firmware upgrade on the loader using your mobile phone (iOS or Android). Hold in the Programming Button when the LED is Flickering Blue to put the loader into Wireless Receiving mode and the LED will turn White. The loader is now Discoverable on the mobile application. If left in Discover mode too long the Spire III will automatically reboot and exit the programming menu.

Start the application and press Upgrade Firmware. The app will show a your loader's serial number in the list. Tap on the serial loader number and wait until the application indicates that the upgrade has been completed. The loader will boot and resume normal operation. If the upgrade fails, the loader will revert back to the existing firmware.

FACTORY RESET //

To return all setting to the factory defaults, while in programming mode, hold the bottom button down for 10 seconds until the LED turns white. Once the LED turns white, the led will then flash through the rainbow of colors indicating that all settings have been returned to the factory default.

CONTINUE FOR TROUBLESHOOTING TIPS

This manual covers only the basic troubleshooting information. For up to date support and contact information please visit: www.virtuepb.com/Spire III

SPIRE III NOT TURNING ON //

- 1 Make sure the tray is seated properly in the shell assembly. Does the tray turn on when it is outside the Spire III?
- 2 Make sure batteries are installed and the polarity is correct. The negative (-) of the battery should be touching the spring of the battery holder.
- 3 Make sure batteries have power in them. Sometimes even brand new batteries are dead, test with another set to make sure.
- 4 Check that the cable between main PCB and motor is connected on both ends.

SPIRE III LED OR SPEAKER NOT WORKING //

- 1 Make sure the LED and Speaker are turned on in the program menu, or perform a factory reset.

SPIRE III FEEDING SLOWLY OR ERATICALLY //

- 1 Ensure that your batteries are fresh and a good quality. Off brand batteries frequently cause poor performance.
- 2 Ensure that you have the latest firmware update by using the Spire App to download and flash your Spire III.
- 3 Check the condition of the Spire drive fingers. If they are excessively soft or worn, replace them.
- 4 Check to make sure the Spire is spinning properly with each shot of your marker. If necessary, turn on the sensitivity.
- 5 If you are using Reballs, turn the Drive Pressure setting to 4 or higher.

SPIRE III IS POPCORNING OR PULSING WHEN FULL //

- 1 Ensure that your batteries are fresh and a good quality. Off brand batteries frequently cause poor performance.
- 2 Ensure that you have the latest firmware update by using the Spire App to download and flash your Spire III.
- 3 Check that the Yellow Drive Pressure Setting is set to Auto Mode. Or if necessary, set it to 2.
- 4 Check the condition of the Spire drive fingers. If they are excessively soft or worn, replace them.

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> www.virtuepb.com/Spire III



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FCC NOTICE:

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC ID: SH6MDBT40

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FOR MORE INFORMATION, VISIT:

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