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SPIRE IV[™]

SPIRE IV SETUP

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

QUICK SETUP //

To start using the Spire IV immediately, install 3 AA batteries. The Spire IV loader can work either as a standalone loader or it can function in co-operation with an iFI supported paintball marker. For standalone operation simply turn loader on and start using it. For iFI pairing first turn on the marker then turn on the Spire IV while holding down the button on the bottom of the Spire IV. Keep holding the button until the LED indicators turn green, then release it. There will be a double beep to confirm pairing.

BLUE, loaded and ready (Blinking BLUE while iFI paired)

RED, not loaded, add paintballs (Blinking RED while iFI paired)

YELLOW during startup, low battery.

When your Spire IV 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.

When your Spire IV starts with low batteries, it will automatically enter the power save mode.

SPEC //

LENGTH: 9.5"

WIDTH: 4"

HEIGHT: 3.9"

WEIGHT: 16oz

CAPACITY: 230 balls

BATTERIES: 3 x AA



It is recommended to download the Virtue Paintball+ app from the Google Play Store or Apple App Store and download the latest firmware settings to your Spire IV.



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

MANUAL //

BASICS //

The Spire IV features all new Proactive Feeding logic. Unlike previous Spire models, which required constant sensor readings from every shot occasionally adding in unnecessary spins while shooting, and potentially resulting in slow rates of fire from a sensor malfunction; the Spire IV features the new Proactive Logic. Now your Spire IV starts feeding the instant the first shot is fired from the G-force sensor, and continues to feed automatically, without relying on continuous sensor readings until the stack is full. This is the same proven technology incorporated into the CTRL loader, which works more consistently and reliably on every type of marker.

The Spire IV also features iFI technology which allows it to work in co-operation with a supported marker. When the two are paired together the marker will control when the loader will feed. If the connection is interrupted at anytime the Spire IV will automatically start functioning in standalone mode. The marker will force the Spire IV to spin each time its shot. This allows the Spire IV to start spinning even before the shot has been fired by the marker. Additionally if the marker sees no paint using the breech sensor it will force the Spire IV to feed.

BATTERIES & N-CHARGE //

The Spire IV functions on 3 AA type batteries or with the optional N-Charge rechargeable battery pack. 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 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 IV. When turning on the Spire IV 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. When using the N-Charge battery pack the LBI will not function correctly unless the GREEN LED Power save setting is changed to settings 4 to 6.

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 / PAIRING BUTTON //

The button on bottom of Spire IV serves several functions. When the Spire IV 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 Force Feed button also allows you to enter the Spire IV Programming Menu or iFI pairing by holding this button in when you turn the Spire on, then releasing it after the Spire starts up. To Enter programming menu release the button while the LED indicators are are red. To pair with an iFI supported marker release the button when the LED indicators are Green.

REBALLS //

The Spire IV 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 IV will improve reliability.

If you are using Reballs, you should turn of the Auto Mode in the Yellow Drive Pressure setting. Set the Yellow setting to a value of 5 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.

DISASSEMBLY

OPENING SHELL //

To open the Spire IV shell simply press the lock button on the back of the Spire IV. 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 IV 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 IV 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 IV. Keeping it clean and using fresh batteries is all that is required. If you leave the Spire IV 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 IV, 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 IV 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.

PROGRAMMING SETTINGS

The programming menu can be accessed by turning the Spire IV ON while holding in the Force Feed/Programming button on the bottom of Spire IV and then releasing the Programming button while the LED indicators show a red light. If the LED indicators turn Green before the button is released you will enter pairing mode, not programming menu.

When entering programming menu the LED will cycle through a rainbow of colors. It will stop and start blinking red. This indicates you can now connect to the Spire IV with the Virtue Paintball+ app. If you want to use programming menu with he force feed button press it once and the LED indicator will turn 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 program-ming mode turn the Spire I V off by pressing the on/off button.

RELOAD INDICATOR ALARM // PURPLE VALUES 1-4 / Default 1

This setting allows you to adjust the speaker alarm for the Reload Indicator. The default setting is for the alarm to be turned OFF.

Setting 1 is OFF. The Spire IV 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 IV Smart Ramp goes up, the Spire IV 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 IV 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 IV, 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 IV 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 IV features an 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 IV, and you have already removed and cleaned the Spire Drive and are sure you have good batteries. If the Spire IV 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 IV 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 5 or higher to ensure the Spire does not stop feeding the Reballs prematurely.

LED POWER SAVER //

GREEN

VALUES 1-6 / 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 1-6 / 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 IV is on.

Setting 4: Same as setting 1, but when using N-CHARGE

Setting 5: Same as setting 2, but when using N-CHARGE

Setting 6: Same as setting 3, but when using N-CHARGE

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 IV 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.

iFI ON / OFF SETTING //

WHITE

VALUES 1-2 / Default 1

Setting 1: iFI Feature is turned ON

Setting 2: iFI Feature is turned OFF

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.



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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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