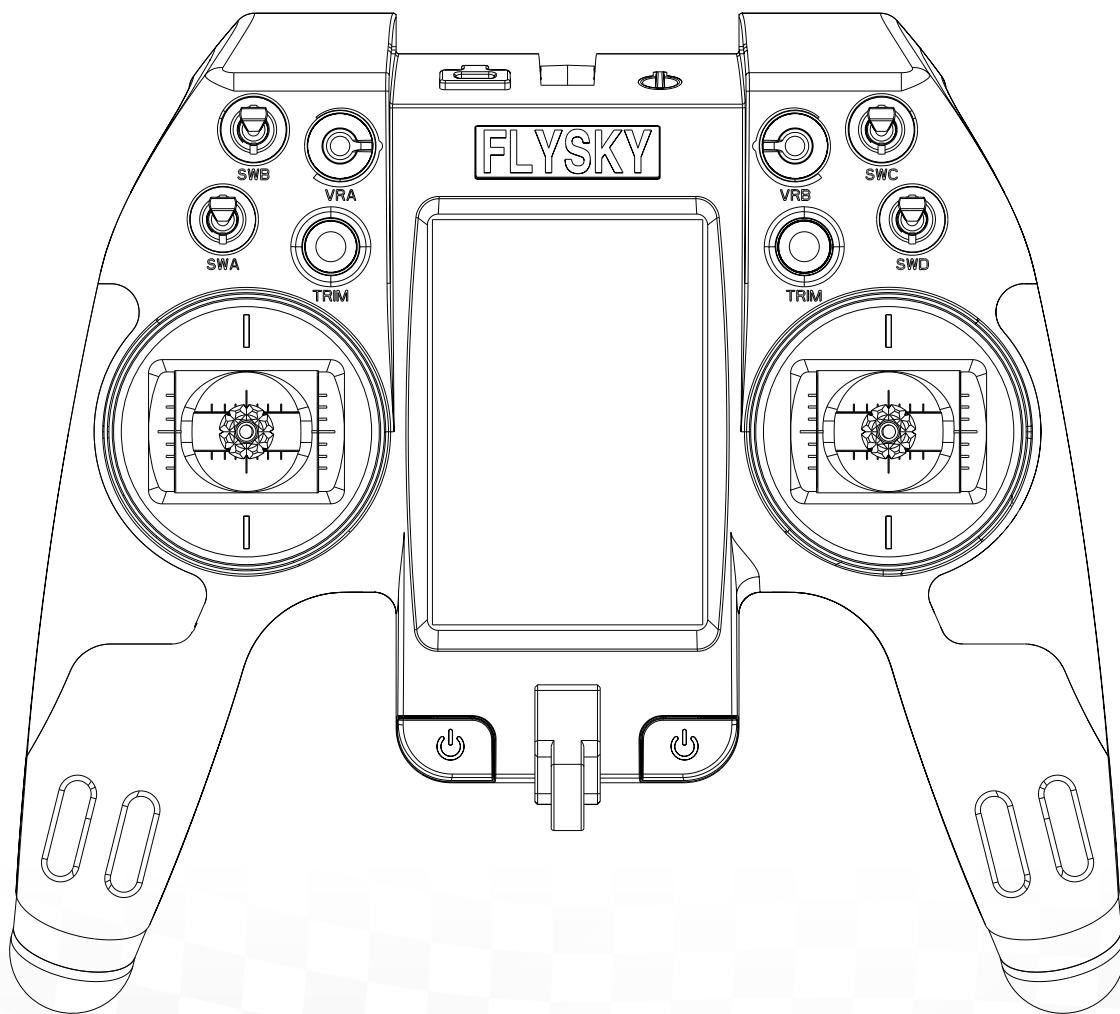


Nirvana NV14

MANUAL

AFHDS 2A



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2.4GHz
AFHDS 2A



警告：

本产品只适合15岁以上人群使用



Thank you for purchasing our product, an ideal radio system for beginners or experienced users.

In order to ensure your safety, and the safety of others, read this manual carefully before using this product. If you encounter any problem during use, refer to this manual first. If the problems persists, contact your local dealer or visit our service and support website: www.flysky-cn.com

The following documents can be downloaded at the official Flysky website:

1. Nirvana Instruction Manual
2. Nirvana Quick Start Guide
3. Disclaimer & Warning

Users are advised to read the Disclaimer & Warning first, then the Nirvana Quick Start Guide and the Nirvana Instruction Manual.




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Safety

■ Safety Symbols

Pay close attention to the following symbols and their meanings. Failure to follow these warnings could cause damage, injury or death.

 Danger	• Not following these instructions may lead to serious injuries or death.
 Warning	• Not following these instructions may lead to major injuries.
 Attention	• Not following these instructions may lead to minor injuries.



- **Do not use the product at night or in bad weather like rain or thunderstorm. It can cause erratic operation or loss of control.**
- **Do not use the product when visibility is limited.**
- **Do not use the product on rain or snow days. Any exposure to moisture (water or snow) may cause erratic operation or loss of control.**
- **Interference may cause loss of control. To ensure the safety of you and others, do not operate in the following places:**
 - Near any site where other radio control activity may occur
 - Near power lines or communication broadcasting antennas
 - Near people or roads
 - On any body of water when passenger boats are present
- **Do not use this product when you are tired, uncomfortable, or under the influence of alcohol or drugs. Doing so may cause serious injury to yourself or others.**
- **The 2.4GHz radio band is limited to line of sight. Always keep your model in sight as a large object can block the RF signal and lead to loss of control.**
- **Never grip the transmitter antenna during operation. It significantly degrades signal quality and strength and may cause loss of control.**
- **Do not touch any part of the model that may generate heat during operation, or immediately after use. The engine, motor or speed control, may be very hot and can cause serious burns.**



- **Misuse of this product may lead to serious injury or death. To ensure the safety of you and your equipment, read this manual and follow the instructions.**
 - **Make sure the product is properly installed in your model. Failure to do so may result in serious injury.**
 - **Make sure to disconnect the receiver battery before turning off the transmitter. Failure to do so may lead to unintended operation and cause an accident.**
 - **Ensure that all motors operate in the correct direction. If not, adjust the direction first.**
 - **Make sure the model flies within a certain distance. Otherwise, it would cause loss of control.**
- The NV14 system uses opentx open source firmware. Official updates will be posted on our official website from time to time.
 - If you modify or use unofficial software, you may lose control.
 - Our company will not bear the risk of loss of control, system information and other losses caused by unofficial firmware!

Battery Warning



Do not use batteries that are damaged, aged or have abnormalities such as leaks.

Do not short circuit the battery.

Do not repair, modify, disassemble, crush or puncture the battery.

Do not allow contact with water.

Do not charge or store the battery in high temperatures or in direct sun light.

Store the battery in a cool, dry environment.

Do not charge under the following conditions:

- Covered or without ventilation.
- In extremely cold or hot conditions.

Do not use around flammable gases or liquids.

Do not bend, stretch or pull on the power cord.

- The power cord may be damaged by fire, heat, electric shock etc.
-

The battery should be stored in a location that is not accessible to infants and toddlers.

Be sure to charge the battery before flying.

- If a battery leak accidentally comes in contact with skin, clothing, etc., wash it immediately with water. If it comes in contact with eyes wash immediately. Seek medical attention if necessary.



When not in use for a long time, remove the battery from the transmitter and store it in a dry environment.

Do not throw used batteries into the garbage can, etc., and dispose of them according to the treatment methods specified in each area.

Use only the battery specified by the manufacturer.

Take care to prevent the battery from falling, bumping or vibrating.

If the battery is damaged, stop using it immediately.

■ Product Overview

The Nirvana, referred to as NV14, is a 14-channel transmitter with a 3.5in LCD capacitive color touch screen. It uses built-in (AFHDS 2A) and external RF modules. The system comes with the FS-X8B and FS-iA8X receiver's with OpenTX firmware making it a perfect system for FPV.

The NV14 has 2 RF options, internal and external, the internal RF supports up to 14 channels of output, the external high frequency supports up to 32 channels of output.

The built-in RF system forms a system designed for FPV using the FS-X8B receiver or FS-iA8X receiver.

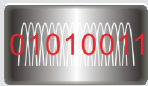
System Features

The AFHDS 2A (Automatic Frequency Hopping Digital System Second Generation) developed and patented by FLYSKY is specially developed for all radio control models. Offering superior protection against interference while maintaining lower power consumption and high reliable receiver sensitivity, FLYSKY's AFHDS technology is considered to be one of the leaders in the RC market today.



Bidirectional Communication

Capable of sending and receiving data, each transmitter is capable of receiving data from temperature, altitude and many other types of sensors, servo calibration and i-BUS Support.



Multi-channel Hopping Frequency

This systems bandwidth ranges from 2.4055GHz to 2.475GHz. This band is divided in 140 channels. Each transmitter hops between 16 channels (32 for Japanese and Korean versions) in order to reduce interference from other transmitters.



Omnidirectional Gain Antenna

The high efficiency Omnidirectional high gain antenna cuts down on interference, while using less power and maintaining a strong reliable connection.



Unique ID Recognition System

Each transmitter and receiver has its own unique ID. Once the transmitter and receiver have been paired, they will only communicate with each other, preventing other systems accidentally connecting to or interfering with the systems operation.



Low Power Consumption

The system is built using highly sensitive low power consumption components, maintaining high receiver sensitivity, while consuming as little as one tenth the power of a standard FM system, dramatically extending battery life.

■ OpenTX

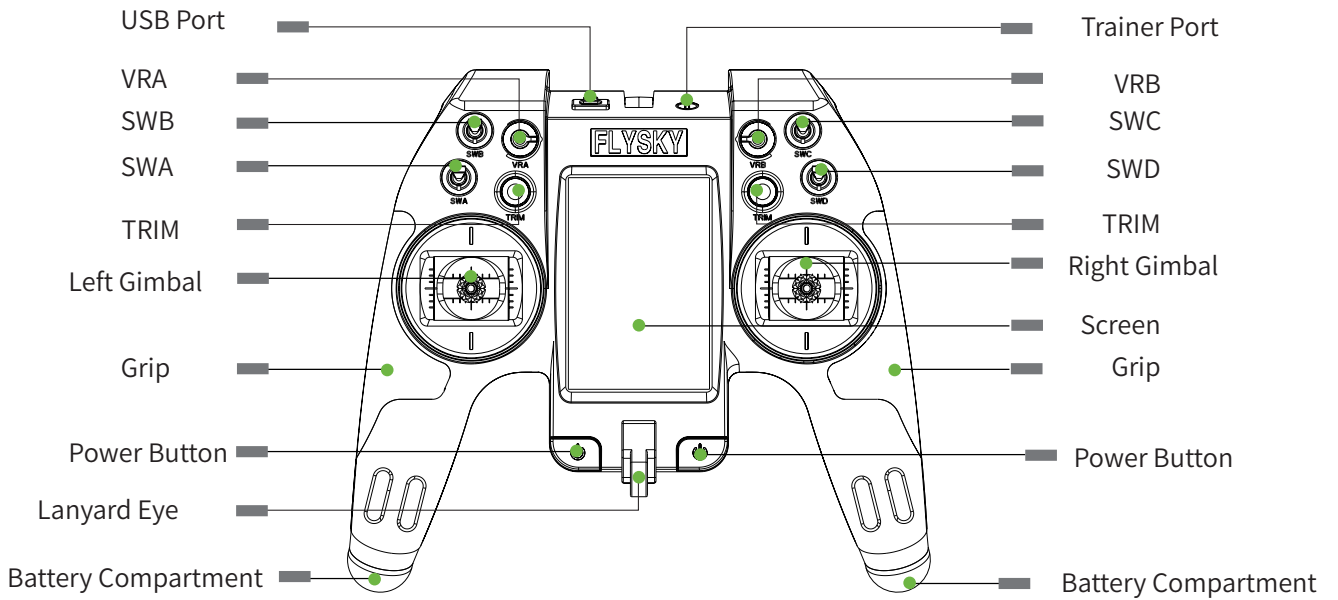


OpenTX is an open source operating system for RC remote control. OpenTX is very powerful. Users can configure RC remote control according to their own needs, making RC remote control more comprehensive and higher performance.

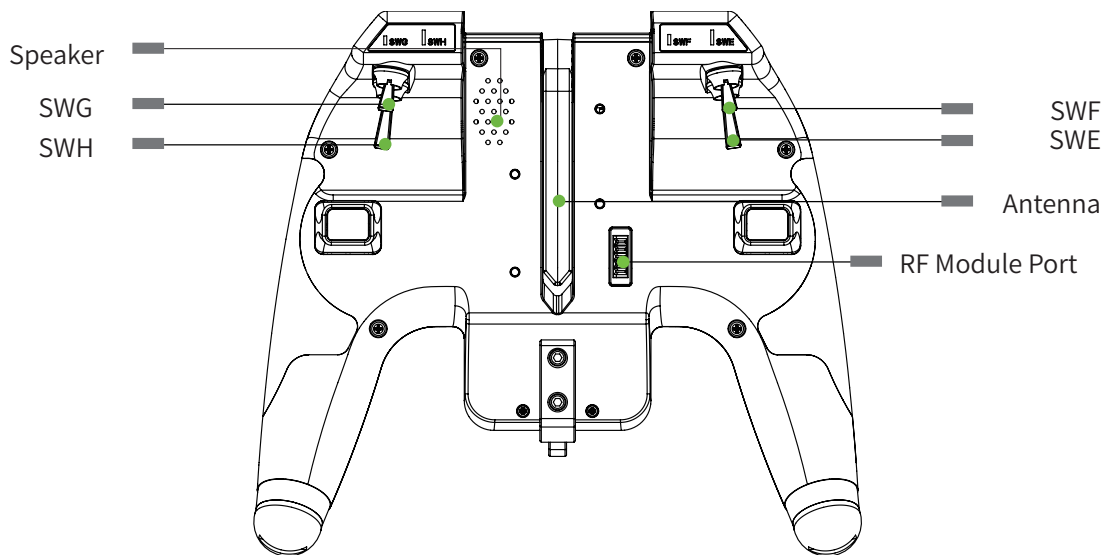
Overview

Transmitter

Front:



Back



Precautions!

- Read the Disclaimer & Warnings before use.

Switches

USB Port: charging function, simulator , update.

VRA: knob

VRB: knob

SWA: short 2 position switch

SWB: short 3 position switch

SWC: short 2 position switch

SWD: short 2 position switch

SWE: long 2 position switch

SWF: short 3 position switch

SWG: short 3 position switch

SWH: Long 2 position switch

TRIM (Left) /TRIM (Right) : trim for throttle, pitch, roll and yaw

Left Gimbal: No self return to centre

Right Gimbal: Self return to centre

Trainer Port: For Trainer Function

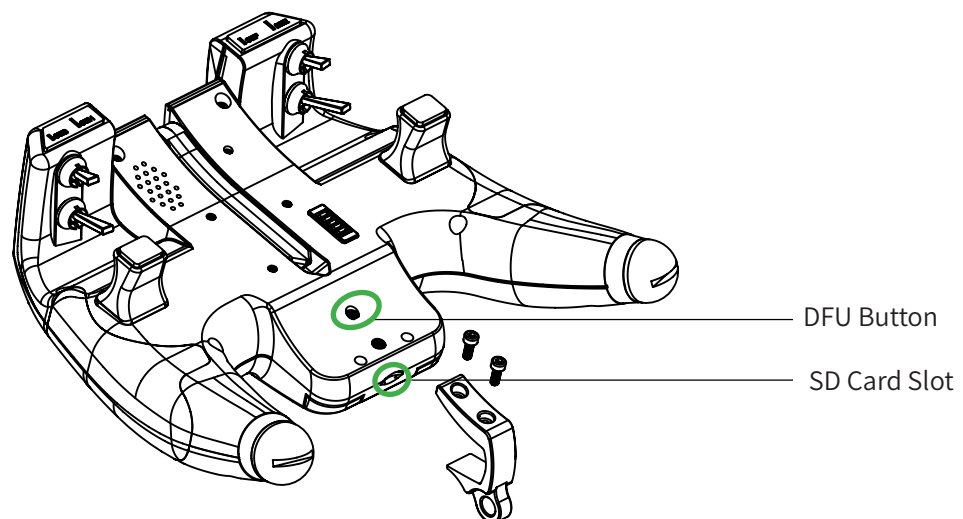
RF Module Port: For external RF modules

Antenna: Omnidirectional antenna, foldable

DFU Button

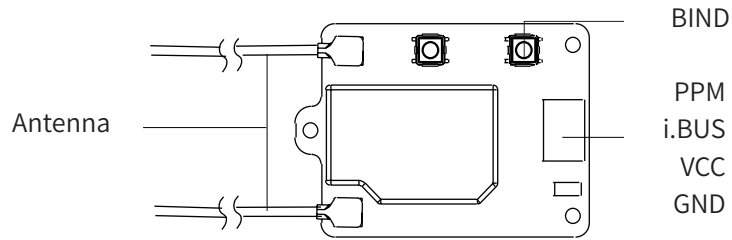
The DFU button is located in in the screw hole marked in the green circle in the picture below. The DFU button is used to update the NV14

- Note: Do not operate the DFU function buttons with sharp or metal objects to prevent damage to the internal structure.
- For details on use, please see the "Update Program" section.

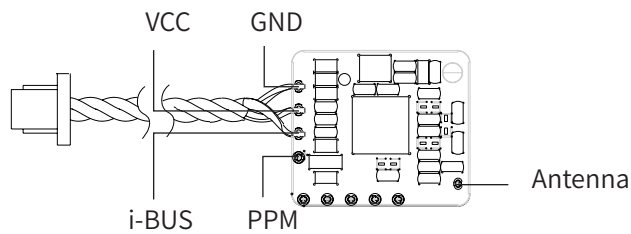


Receiver

FS-X8B

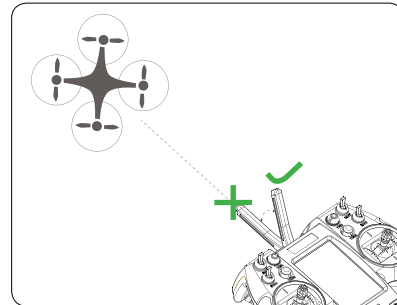
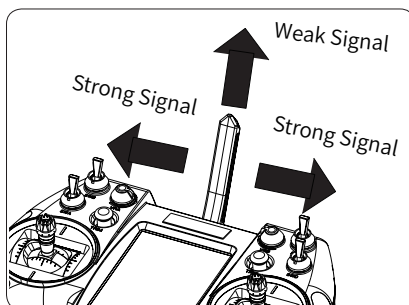
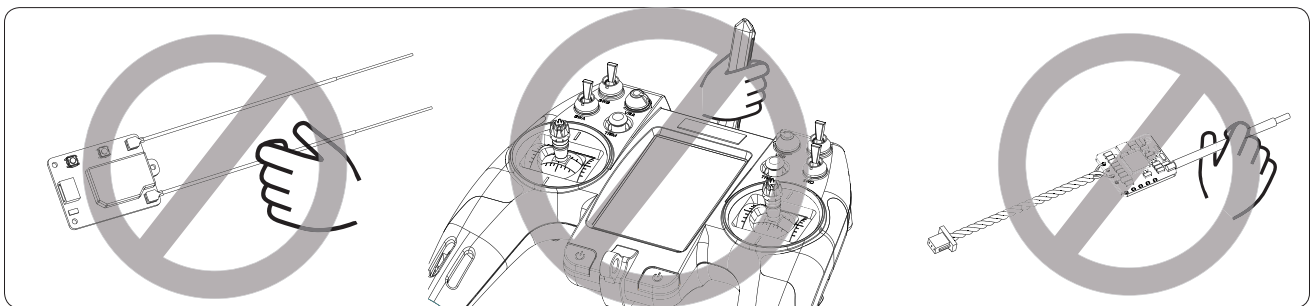


FS-iA8X










Antenna

- | | | |
|--|-------------|--|
| | Note | Do not hold the antenna during use in order to prevent signal quality loss. |
| | Note | To ensure signal quality, the antenna should be perpendicular to the model body. |
| | Note | Do not pull or bend the antenna. |



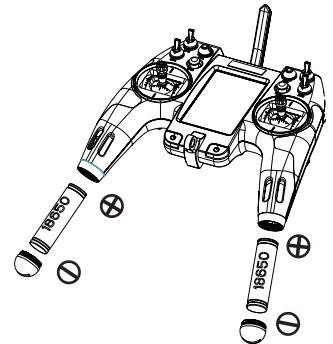
■ Before Use

Before operation, please follow the instructions in this chapter to install the battery and connect the device.

 Danger	• Use only the battery specified by the manufacturer.
 Danger	• Do not open, disassemble, or repair the battery yourself.
 Danger	• Do not squeeze, puncture, or touch the metal terminals of the battery.
 Danger	• Do not expose the battery to high temperatures or liquids.
 Danger	• Take care to prevent the battery from dropping, bumping or vibrating.
 Danger	• Store the battery in a dry, cool environment.
 Danger	• If the battery is damaged, stop using it immediately.

■ Transmitter Battery Installation

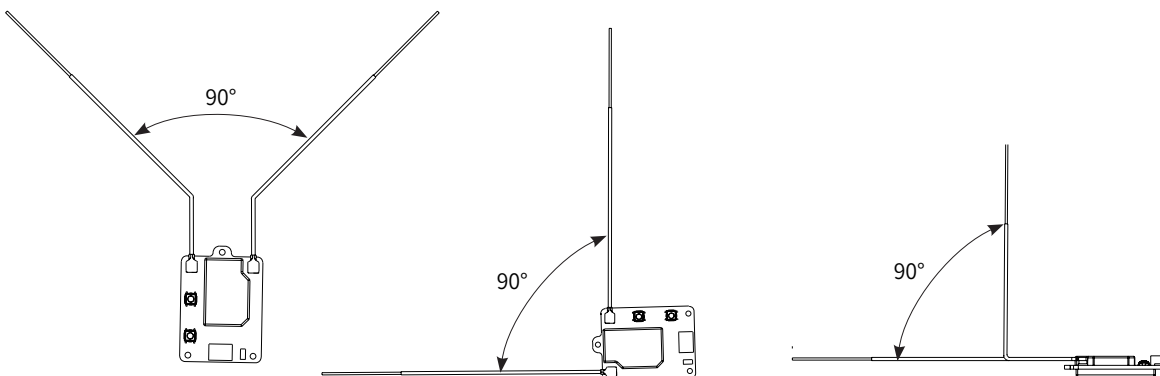
1. Unscrew both battery compartment covers from the transmitter handles.
2. Insert 2 18650 batteries into the battery compartments.
 - Please pay attention to the positive and negative terminals of the battery. The positive and negative terminals of the battery are installed as shown. To the right.
 - To ensure a stable power supply use 2 batteries.
3. Screw the battery compartment covers back into place.



■ Receiver Installation

Installation:

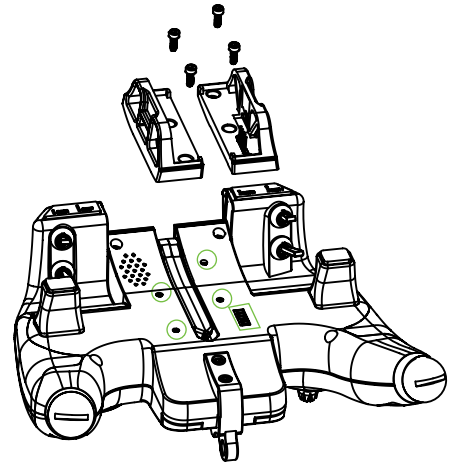
1. Make sure the receiver is installed away from the motor, electronic governor or parts with excessive electrical noise.
2. The receiver antenna should be kept away from conductive materials such as metal rods and carbon fiber. Make sure there is at least 1 cm receiver and the conductive material.
3. Make sure that the two antennas of the receiver are fixed at 90 degrees to each other (as shown below).



 Caution	• Do not connect the receiver to the power supply during these steps to avoid damage.
---	--

■ RF Module Adapter

As seen in the picture to the right, there are 4 screw holes in both the NV14 and the adapter. To install the adapter, align the screw holes of the transmitter and adapter, insert the screws and tighten.

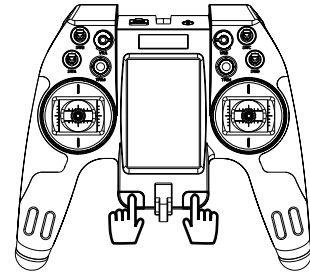


■ Operation

After the preparation is complete, you can follow the instructions in this chapter to get started.

■ Power On

1. Make sure all the switches are at their highest positions and the throttle is at its lowest position.
2. Press and hold both of the power buttons until the screen turns on



Note

The system is now active, please use extreme caution during use.



Note

For your safety make sure the throttle is at its lowest position and switches at their highest.

■ Binding

■ Binding with FS-X8B

1. Press and hold the receivers bind button and turn on the receiver.
 - The receivers status indicator will flash quickly when in bind mode.
2. In the **【Bind】** submenu on the transmitter, touch bind to enter bind mode.
3. When binding is successful the receivers status indicator will stop flashing.
4. Test to make sure everything works as expected.





■ Binding with FS-iA8X

1. The receiver enters bind mode automatically when powered on.
 - The receivers status indicator will flash quickly when in bind mode.
 2. In the **【Bind】** submenu on the transmitter, touch bind to enter bind mode.
 3. When binding is successful the receivers status indicator will stop flashing.
 4. Test to make sure everything works as expected.
- These steps only apply to the Nirvana and it's included receivers. For other receivers please refer to their user manual.
 - As the product is constantly updated, please visit the FLYSKY website for the latest transmitter and receiver compatibility documents.

■ Pre-Flight Check


For safety follow the steps below before use:

1. Inspect the entire system to ensure that everything functions as expected.
2. Perform a range check: Move the transmitter and receiver apart until they lose connection.

 Danger	• If there is any strange behaviour during testing do not use.
 Danger	• When in use make sure not to fly beyond the maximum range.
 Caution	• External signal sources may affect signal quality.
 Danger	• Check each channel is working correctly before use.

■ Power Off

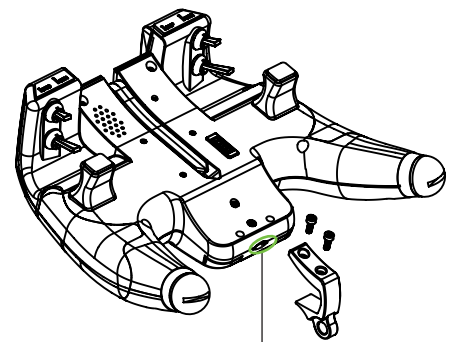
1. Power off the receiver.
 - For safety always power off the receiver before the transmitter.
2. Press and hold both power buttons until the screen powers off.

 Danger	• For safety always power off the receiver before the transmitter.
---	--

■ Lanyard Eye and SD Card Slot

1. Loosen the two hex screws on the back Lanyard Eye
2. Remove the lanyard eye to expose the SD card slot.
3. Press the SD card inwards and release to remove.

- The NV14 needs to have an SD card installed for the firmware to work correctly.



SD Card Slot

- **The NV14 transmitter is compatible with FRSKY R9M, SPEKTRUM, TBS CROSSFIRE and TBS CROSSFIRE is making.**
- **When using the NV14's internal batteries, the transmit power should not exceed 100mW. If it is greater than 100mW, an external power supply is required.**

■ Update

Requirements

Zadig Driver Installer: <https://zadig.akeo.ie/>

OpenTX Compainion 2.2: <https://www.open-tx.org/2018/07/28/opentx-2.2.2>

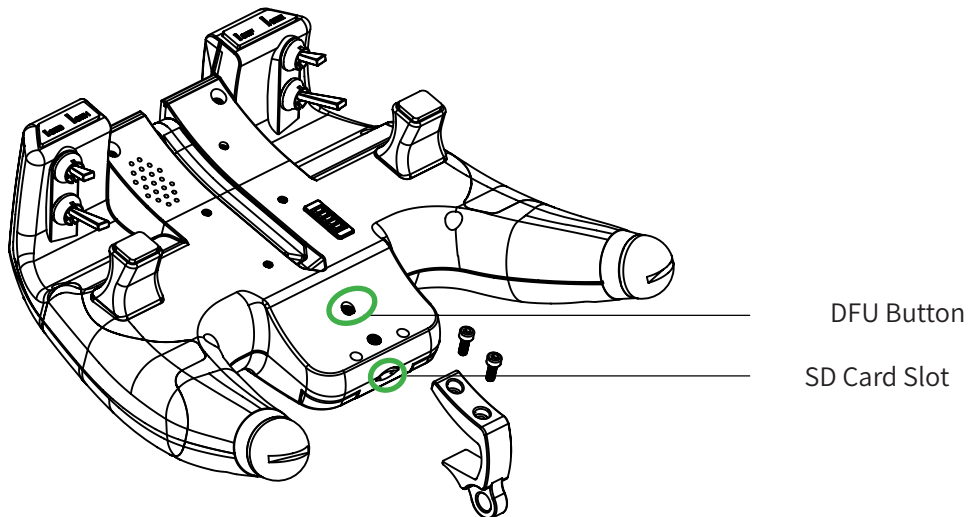
Firmware and SD card contents: <http://www.flysky-cn.com/download.html>

Driver Installation

Installing the driver is only required the first time you flash your radio on a given computer. If you already done this step, you can skip this section.

Note: Windows 10 may delete the driver duing updates so if you have issues flashing in future reinstall the driver.

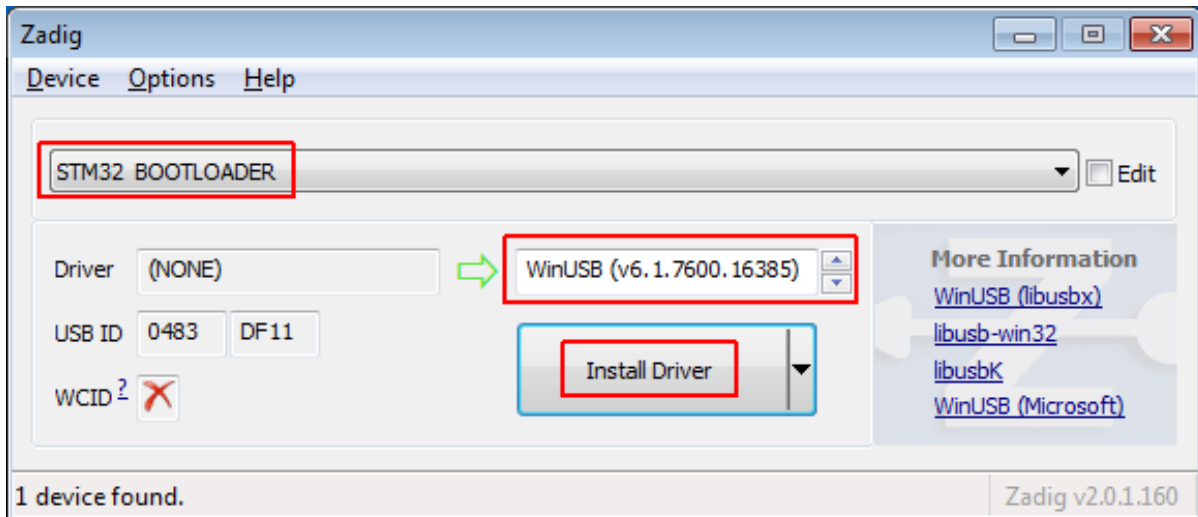
1. Put the Nirvana into DFU mode:
 - a. Take out and reinsert the battery.
 - b. Press the DFU button and inset the USB wire at the same time. (Check user manual for location of DFU button)



2. Download the Zadig utility for your operating system from its homepage: <http://zadig.akeo.ie/>

3. Right click the file and select "Run as Administrator "


4. In the big dropdown, you should find an entry named either "STM32 BOOTLOADER" or "STM Device in DFU mode" . Select it, and click the "Install Driver" or "Replace Driver " button.



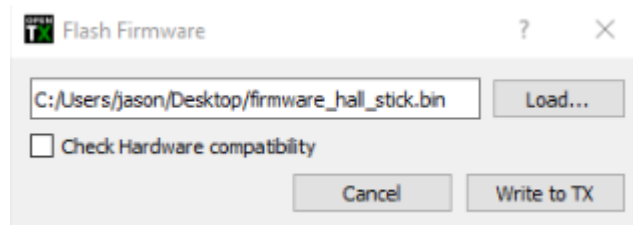
Note: If the dropdown menu is empty go to options and select "List all devices".

Flashing Firmware to Nirvana

1. Open OpenTX Companion

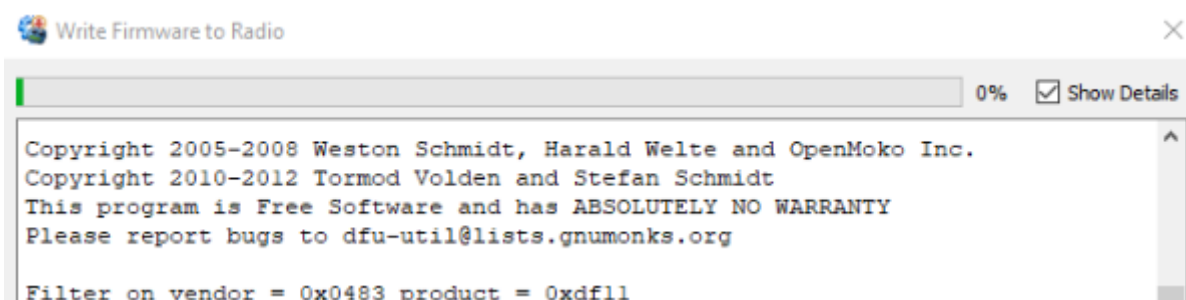
2. Select the  icon located on the left side of the window.

3. On the popup, select "Load...", then select the firmware .bin file that you downloaded from the links on page 1.

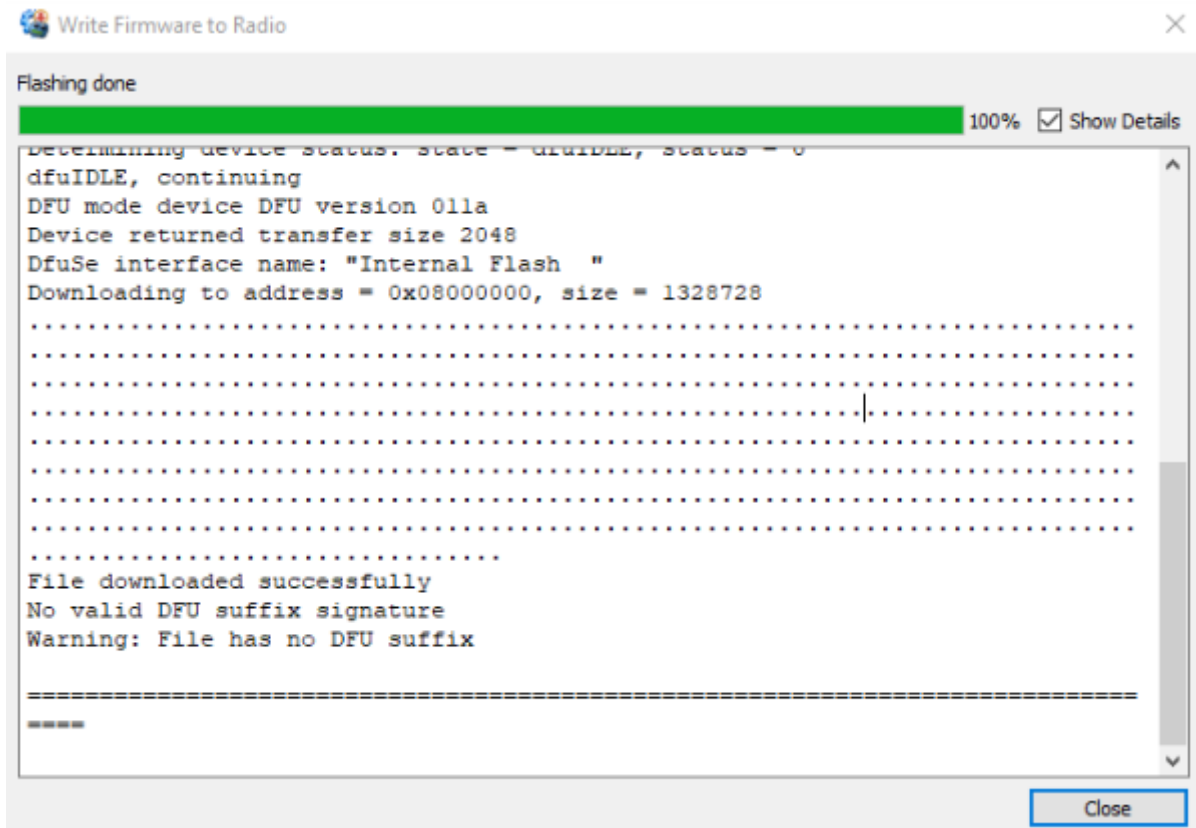


Make sure that the "Check Hardware Compatibility" box has been unchecked.

4. Click "Write to TX". A new window will open with a progress bar and some debug information.



5. After the update is complete, click Finish, disconnect the USB cable, insert the battery and turn on the transmitter.



Note: If you get an error saying "Cannot Open Device ", reinstall the USB drivers.



Another thing to check is that companion has dfu-util.exe configured correctly by clicking the icon and making sure it leads to this address C:/Program Files (x86)/OpenTX/Companion2.2/dfu-util.exe

To exit DFU mode after pressing the DFU button, unplug the USB cable and remove the battery from the transmitter.

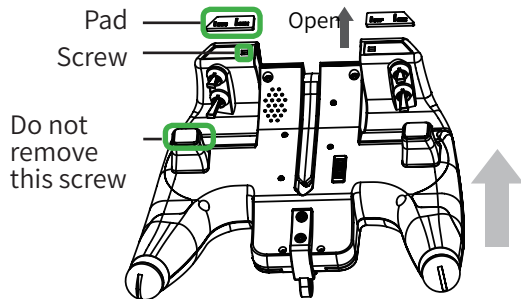
Your Nirvana is now updated and ready to use!

Left and Right Gimbal Swap

The NV14 is able to switch stick functions as needed. When the NV14 is shipped from the factory the left stick is set up for throttle, and as such will not return to the centre.

- Note: Remember to change the stick mode in the software after changing the stick positions.

1



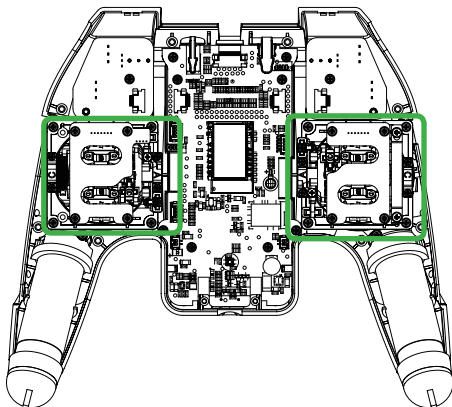
Remove the 2 hand grips and switch pads, then remove all 10 screws on the bottom of the transmitter apart from the screws in the finger grips. Lift gently to pull the cover apart.



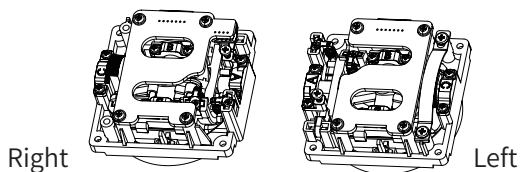
Caution

- Don't pull the front and back too far apart to avoid damaging wires.

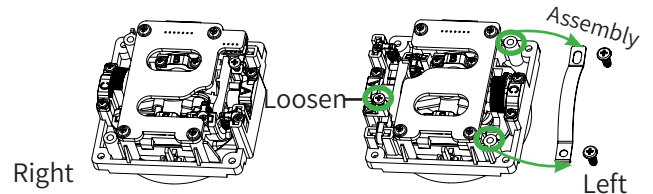
2



Left and right gimbals shown below for clarity.

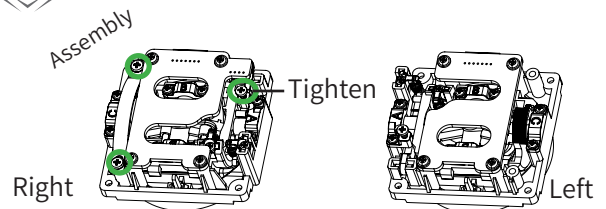


3



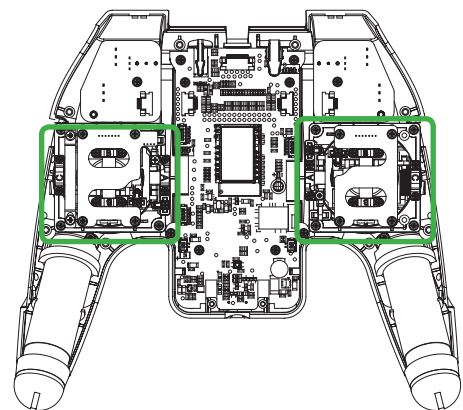
Take out the assembly assembly and loosen the screws marked in the figure.

4



As shown, attach the assembly, removed from the left assembly to the right assembly, and tighten the screws marked in the figure.

5



Replace the back of the transmitter and tighten the screws, then replace the grips.

Specifications

■ Nirvana Specifications

Product	NV14
Channels	14
Freq Range	2.408-2.475GHz
2.4GHz Protocol	AFHDS 2A
Modulation	FHSS
Power	<20dBm (EU)
Low Voltage Alarm	<3.7 V
Antenna Type	Built-in antenna and external antenna
Battery	2*18650
Online Update	Yes
Dimensions	205.2*183.7 mm
Weight	726.2g
Certification	CE, FCC ID:N4ZNV1400

■ FS-X8B Specifications

Product	FS-X8B
Channels	8 (PPM);18(i-BUS)
Freq Range	2.408-2.475GHz
2.4GHz Protocol	AFHDS 2A
Modulation	FHSS
Power	<20dBm (EU)
Data output	PPM/i-BUS
Antenna Type	93mm (Dual Antenna)
Input Power	4.0 ~ 8.4V
Online Update	No
Dimensions	25×22.5×7.5mm
Weight	3.7g
Certification	CE, FCC ID:N4ZX8B00

■ FS-iA8X Specifications

Product	FS-iA8X
Channels	8 (PPM);18(i-BUS)
Freq Range	2.408-2.475GHz
2.4GHz Protocol	AFHDS 2A
Modulation	FHSS
Power	<20dBm (EU)
Data output	PPM/i-BUS
Antenna Type	Single antenna
Input Power	4.0 ~ 8.4V
Online Update	No
Dimensions	15x13x3 mm
Weight	<2 g
Certification	CE, FCC ID:N4ZIA8X00

Package Contents

NV14 transmitter * 1
FS-X8B receiver * 1
FS-iA8X receiver * 1
Micro USB cable * 1
Trainer Wore * 1
SD card * 1
RF module adapter * 1
Protective cover * 1

■ Certification

■ DoC

Hereby, [Flysky Technology co., ltd] declares that the Radio Equipment [NV14] is in compliance with RED 2014/53/EU.

The full text of the EU DoC is available at the following internet address: www.flysky-cn.com

■ CE

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance

■ Environmentally friendly disposal

Old electrical appliances must not be disposed of together with the residual waste, but have to be disposed of separately. The disposal at the communal collecting point via private persons is for free. The owner of old appliances is responsible to bring the appliances to these collecting points or to similar collection points. With this little personal effort, you contribute to recycle valuable raw materials and the treatment of toxic substances.



CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

■ Appendix 1 FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This equipment 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.

Caution!

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.

1. Move all your channels to the desired position.
2. Select [All channels] and then [Yes] in the confirmation box.



www.flysky-cn.com

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Date: 2018-11-27



FCC ID: N4ZNV1400