

SYNC™ 251

UAV/FPV



**READ THESE INSTRUCTIONS
BEFORE FLYING!**



QUICK START FLYING GUIDE

1



Turn on the controller.

2



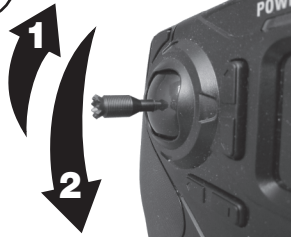
**Connect charged battery.
Close the door.**

3



Set on a flat surface.

4



**Move the left stick up
then down to arm the motors.**

5



**Press and release to start
motors. Press again to Auto
Takeoff or Auto Land.**

6



FLY!



WARNING: Product includes a lithium polymer (LiPo) battery. Improper handling may result in **FIRE!** You are responsible for following all safety precautions as outlined in this instruction manual.

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit www.horizonhobby.com and click on the support tab for this product.


Meaning of Special Language

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.

 **WARNING:** Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.


This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not use with incompatible components or alter this product in any way outside of the instructions provided by Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

14+ **AGE RECOMMENDATION: Not for children under 14 years. This is not a toy.**

SAFETY PRECAUTIONS

Follow these safety precautions when operating this or any model drone.

- Do not touch the spinning blades or fly over people or animals.
- Keep your face and body as well as all spectators away from the rotors whenever the battery is connected.
- Stay clear of buildings, trees and power lines. AVOID flying in or near crowded areas. DO NOT fly close to people, children or pets.
- Maintain a safe pilot-to-drone distance while flying.
- Your Sync 251 Drone should not be considered a toy, but rather a small, working model. If not operated correctly, the model could possibly cause injury to you or spectators and damage to property.
- Do not alter or modify the model, as doing so may result in an unsafe or unflyable model.
- You must check the operation of the model before every flight to ensure that the model has remained structurally sound.


 **CAUTION:** Changes or modifications to this product not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

LOCATION PRECAUTIONS

The Sync™ 251 drone uses optical flow technology to hold it in place. This works by taking repeated pictures of the ground and comparing the pixels from one picture to the next very fast. If it senses a change, the sensor will command the drone to adjust its position. While this technology is incredible, there are some things to watch for that can confuse the sensor:

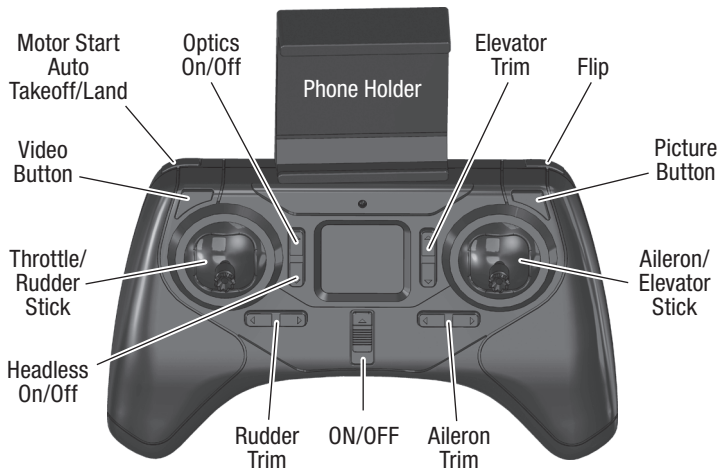
- Floors that are shiny and reflective may cause drifting as it tries to follow light reflections.
- Surfaces that are very consistent, like black asphalt, snow, or uniform tile floors, can also confuse the sensor and cause drifting.
- Flying over water or anything that can move will cause the drone to drift.
- When it is windy outside and the grass or flowers are moving, the drone may drift. If you find it is drifting where you are at, simply move to an area where the sensor can see stationary objects.

CHARGING WARNINGS

 **CAUTION:** All instructions and warnings must be followed exactly. Mishandling of Li-Po batteries can result in a fire, personal injury and/or property damage.

- **NEVER LEAVE CHARGING BATTERIES UNATTENDED.**
- **NEVER CHARGE BATTERIES OVERNIGHT.**
- By handling, charging or using the included Li-Po battery, you assume all risks associated with lithium batteries.
- If at any time the battery begins to balloon or swell, discontinue use immediately. If charging or discharging, discontinue and disconnect. Continuing to use, charge or discharge a battery that is ballooning or swelling can result in fire.
- Always store the battery at room temperature in a dry area for best results.
- Always transport or temporarily store the battery in a temperature range of 40–120° F (5–49° C).
- Do not store battery or model in a car or direct sunlight. If stored in a hot car, the battery can be damaged or even catch fire.
- Always charge batteries away from flammable materials.
- Always inspect the battery before charging
- Always disconnect the battery after charging, and let the charger cool between charges.
- Always constantly monitor the temperature of the battery pack while charging.
- **ONLY USE A CHARGER SPECIFICALLY DESIGNED TO CHARGE LI-PO BATTERIES.** Failure to charge the battery with a compatible charger may cause a fire resulting in personal injury and/or property damage.
- Never discharge Li-Po cells to below 3V under load.
- Never cover warning labels with hook and loop strips.
- Never charge batteries outside recommended levels.
- Never charge damaged batteries.
- Never attempt to dismantle or alter the charger.
- Never allow minors to charge battery packs.
- Never charge batteries in extremely hot or cold places (recommended between 40–120° F or (5–49° C) or place in direct sunlight.

CONTROLLER



Remove the screw on the battery compartment cover. Take the cover off and insert (4) AAA batteries. Replace cover, securing with the screw.

- Do not mix old and new batteries.
- Do not mix alkaline, standard, or rechargeable batteries.

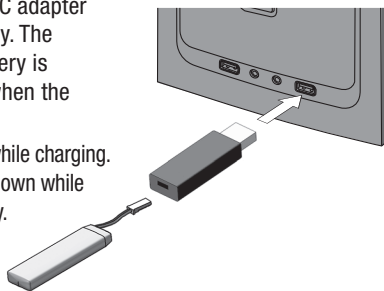
CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used battery according to the instructions.



CHARGING the FLIGHT BATTERY

Plug the charger into a USB port or AC adapter (not included) and connect the battery. The red LED will be steady while the battery is charging. The LED will flash slowly when the battery is fully charged.

- NEVER leave the battery unattended while charging.
- DO NOT allow the USB port to power down while the charger is connected to the battery.
- ALWAYS unplug the charger from the USB port and the battery when charging is complete.
- The battery connector will only fit in one way.



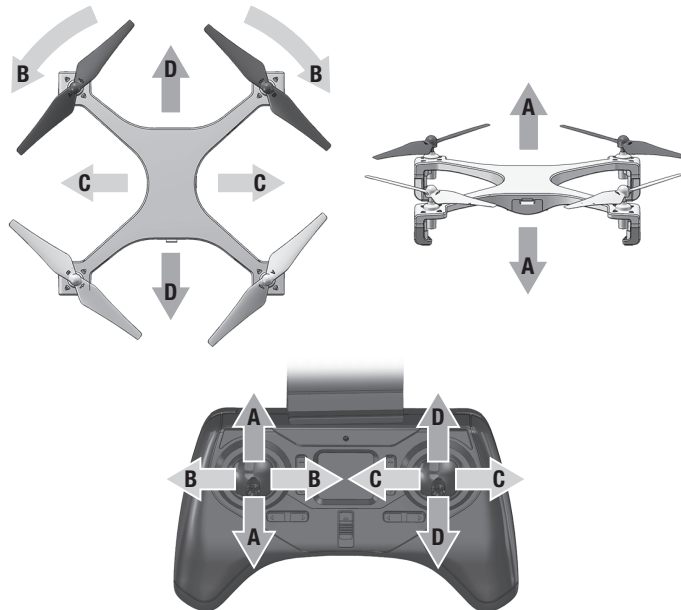
GET READY TO FLY

1. Turn on the controller.
2. Connect the flight battery and set on a level surface.
3. Move the throttle stick to its highest position and listen for a beep.
4. Move the throttle stick down to its lowest position and listen for a beep. The flashing LEDs on the Sync 251 Drone's arms will become steady.
5. For your first flight, we recommend calibrating the sensors (page 4).

The motors are now armed and can be started with the motor start button.



HOW to FLY

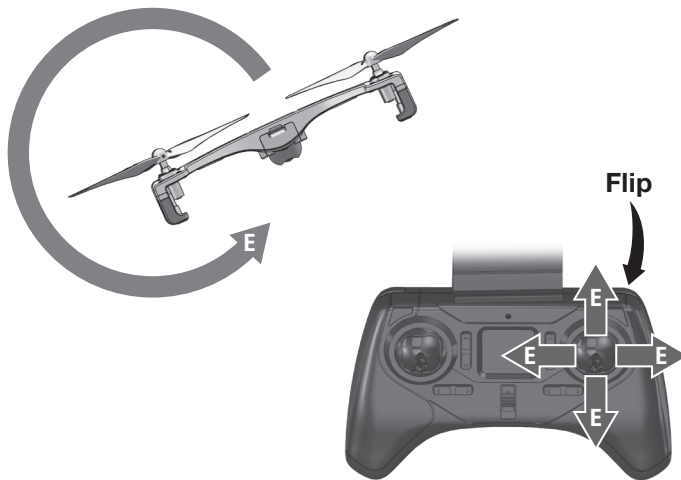
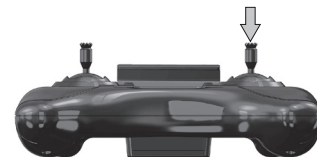


Basic Flight After initially connecting the battery, move the left stick up then down to arm the motors. Press the Motors Start button until the motors start to spin. Press again and the drone will auto-take off and hover about 3 feet (1 meter) above the floor. **OPTION:** After the motors are spinning, the throttle stick can also be used to manually take off. Slowly advance the throttle and release it when you reach the desired height.

The control sensitivity should be in the low setting if flying indoors. Small movements of the pitch, roll and yaw control sticks should be used to move. Raise or lower the throttle stick to change the altitude. When the drone is at the desired height, release the throttle stick so the Altitude Hold sensor can maintain and hold height. If you get into trouble and see that the drone is going to crash, press and HOLD the MOTOR START/STOP button to stop the motors as soon as possible.

Sensitivity Adjustment Push down on the right stick to change the sensitivity of the controls.

Sensitivity	Beep	Flight Mode LED
Low	1	Blue
High	2	Purple



Flips Tap the flip button. Move the right stick in the direction desired and release it when it starts to flip.

IMPORTANT: Flips cannot be done when the LEDs indicate the battery voltage is low.

Low Voltage Alarm The LEDs on the arms will flash when the battery voltage is getting low. Land the drone as soon as possible and charge the battery. The battery must be charged before it is stored. **ALWAYS disconnect the battery when it's not in use!**

Headless Mode When you activate this mode, the drone movements will be relative to the controller no matter which way the drone is pointing. When you push forward on the controller for example, the drone moves away from you even if the camera is pointing to the side or at you. When the Headless Mode is active, the LEDs will flash slowly. For Headless Mode to work:



1. The tail of the drone **MUST** face the pilot when the drone is first plugged in and set down.
2. The pilot must not change position or direction after the controller and drone are linked.

Optics On/Off The optics work great for holding the drone in position. However, if you want more freedom, you can turn them off by pushing the top button. The Red LED's will flash fast and the Blue/Purple LED on the transmitter (for Low/High sensitivity) will turn to (faint orange and bright orange).



SENSOR CALIBRATION

It is normal to require minor corrections while hovering, however if the quad has a strong tendency to drift in one direction, the sensors may need calibration.

1. Power up the controller and the drone.
2. Place the quad on a level surface.
3. Center all the trims.
4. Hold both sticks in the lower right corners. When the LEDs on the arms start to flash rapidly, release the sticks. Do NOT move until the LEDs are steady again.



APP

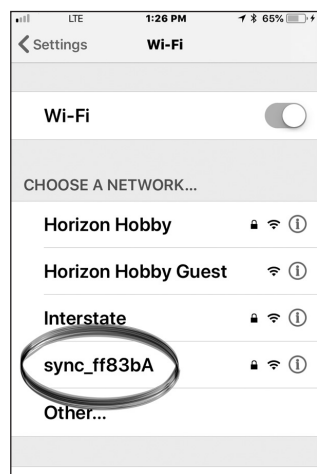
The drone will link to an app on your iOS/Android based mobile device so it can be flown in the FPV mode.

To download the app, open the App Store on your device and enter "Sync FPV" as a search term.



LINKING to the APP

With the drone turned on, open the Wi-Fi settings on your device and select the "SYNC-....." network. The password is "12345678".



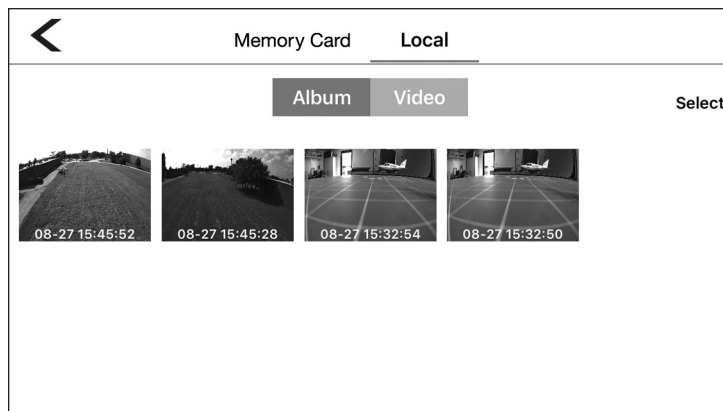
APP CONTROLS



Camera Button – Tap to capture a photo.

Video Button – Tap to start/stop a video. While the video is being recorded, a timer will be visible.

Gallery Button – Tap to view photos and videos stored by the app. Open the SD card or local tabs to view the image/video.

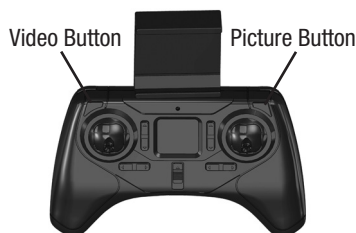


To share or delete an image/video

- Tap the Select button.
- Tap on the image.
- Tap the Share or Delete icon.

Split Screen Button – This button changes the display to a split screen view so your device can be used with a VR Headset (DIDZ1558 FPV Goggles, sold separately).

FPV CAMERA CONTROLS



Press the picture button to capture a photo.  BEEP!

Press the video button to start a video.  BEEEEEP!

The video button must be pressed again to stop and save the video.

The images will be stored in the Gallery in the app and also in your mobile device Photo Gallery.

The camera angle can be adjusted from straight ahead to about 90° down.

Tip: For best video quality, use a class 10 memory card.

FLYING FPV

Your phone can be mounted in the holder on the controller or inserted in the VR headset (DIDZ1558) for a more immersive feel.

The range of the 5G Wi-Fi FPV camera is about 200 feet outdoors and 50 feet indoors, but may be less if the location has a lot of electromagnetic interference or metal objects in the walls.

If you are new to FPV, start by flying line of sight until you can maneuver the drone without having to think about which control to use. Practice by keeping both sticks centered and making only small movements.

When you are ready to start FPV, we recommend that a spotter be available to tell what the drone is doing. Master each of the following steps before moving to the next one.

Step 1

- Take off.
- Hover at about 3 feet.
- Move a few inches to the right in any direction and return to the hover point. Repeat moving left, forward, and backward.
- Slowly land.

The goal is to get used to the view from the camera, the sensitivity of the controls, and judging your height.

Step 2

- Take off.
- Fly slowly (about 10 feet away.)
- Turn around and return to the launch point.
- Slowly land.

The goal is to maintain your height until you are ready to land.

Step 3

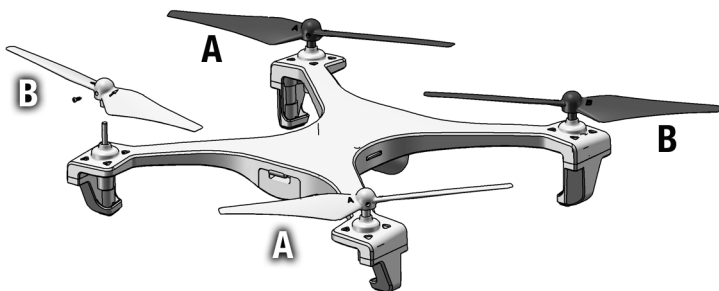
- Set up a course.

Keep it simple at first. When you can fly while maintaining your altitude, set up a course with gates or obstacles at different heights.

The goals are to fly the entire course while maintaining the altitude and increase your speed around the course.

REPAIR AND MAINTENANCE

Blade Replacement



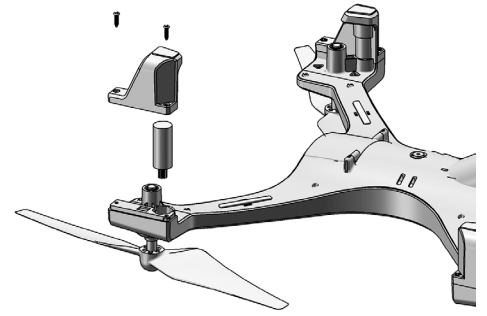
Each arm and rotor blade is marked with the letter “A” or “B”. The blade must be installed on an arm with the same letter or the quadcopter will not be able to fly.

Carefully remove the blade.

Black blades are on the front motors. White blades are on the rear.

Motor Replacement

1. Remove the two screws from the foot.
2. Carefully remove the foot. The motor will unplug and come out with the foot.
3. Plug in the new motor and place it into the frame so the wires line up together.
4. Replace the foot carefully, so the wires get routed without getting pinched.



TROUBLESHOOTING

Flying Problems

PROBLEM: The drone will not respond to the controller.

SOLUTION: (1) Charge or change the battery.

- (2) Turn off the controller and disconnect the battery. Turn it back on and connect the battery. Move the throttle stick Up/Down to arm the motors.

PROBLEM: Red controller LED light flashes after linking.

SOLUTION: Replace with new AA batteries.

PROBLEM: Unable to flip.

SOLUTION: Battery voltage too low.

PROBLEM: Stabilization not working properly.

SOLUTION: (1) Battery voltage low.

(2) Calibrate the sensors.

(3) Check the rotor blades and motors for damage. A common problem is lint wrapped around the motor shaft or bent blades.

PROBLEM: Will not take off.

SOLUTION: (1) Rotor blades incorrectly installed. See Blade Replacement section.

(2) Battery is not fully charged.

(3) Check the rotor blades and motors for damage.

PROBLEM: Shaking.

SOLUTION: Check the canopy, frame, motors and rotor blades for damage.

PROBLEM: Does not maintain altitude when the throttle stick is in the center position.

SOLUTION: Calibrate the sensors.

Video Problems

PROBLEM: The Wi-Fi connection is lost during flight.

SOLUTION: (1) There may be interference in the area. Try flying in a different location.

(2) You are exceeding the Wi-Fi range of the camera. Maintain a closer proximity to your device during flight.

PROBLEM: Video skips during playback.

SOLUTION: Use a high quality class 10 memory card formatted to FAT32.

PROBLEM: The app does not re-establish connection after the connection has been lost.

SOLUTION: Close the app and remove it from the background tasks. Restart the app.

PROBLEM: Horizontal scrolling lines appear in video or pictures.

SOLUTION: Avoid aiming the camera directly into the sun or reflected sunlight.

LIMITED WARRANTY

What this Warranty Covers

Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase.

What is Not Covered

This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Remedy

Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law

These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES

Questions, Assistance, and Services

Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon

to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please visit our website at www.horizonhobby.com, submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services

If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at http://www.horizonhobby.com/content/service-center_render-service-center. If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

NOTICE: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office.

Warranty Requirements

For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

Non-Warranty Service

Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website http://www.horizonhobby.com/content/service-center_render-service-center.

ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded. 10/15

Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	Horizon Hobby, LLC. 2904 Research Road Champaign, IL 61822
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	

FCC INFORMATION

FCC ID: BRWMR210, BRWDIDH1100C
IC: 6157A-MR210, 6157A-DIDH1100C

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.



CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

SUPPLIER'S DECLARATION OF CONFORMITY

Sync 251 UAV Drone RTF
DIDH1100



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.



CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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.

Horizon Hobby, LLC
2904 Research Road
Champaign, IL 61822

Email:
compliance@horizonhobby.com
Web: HorizonHobby.com

IC INFORMATION

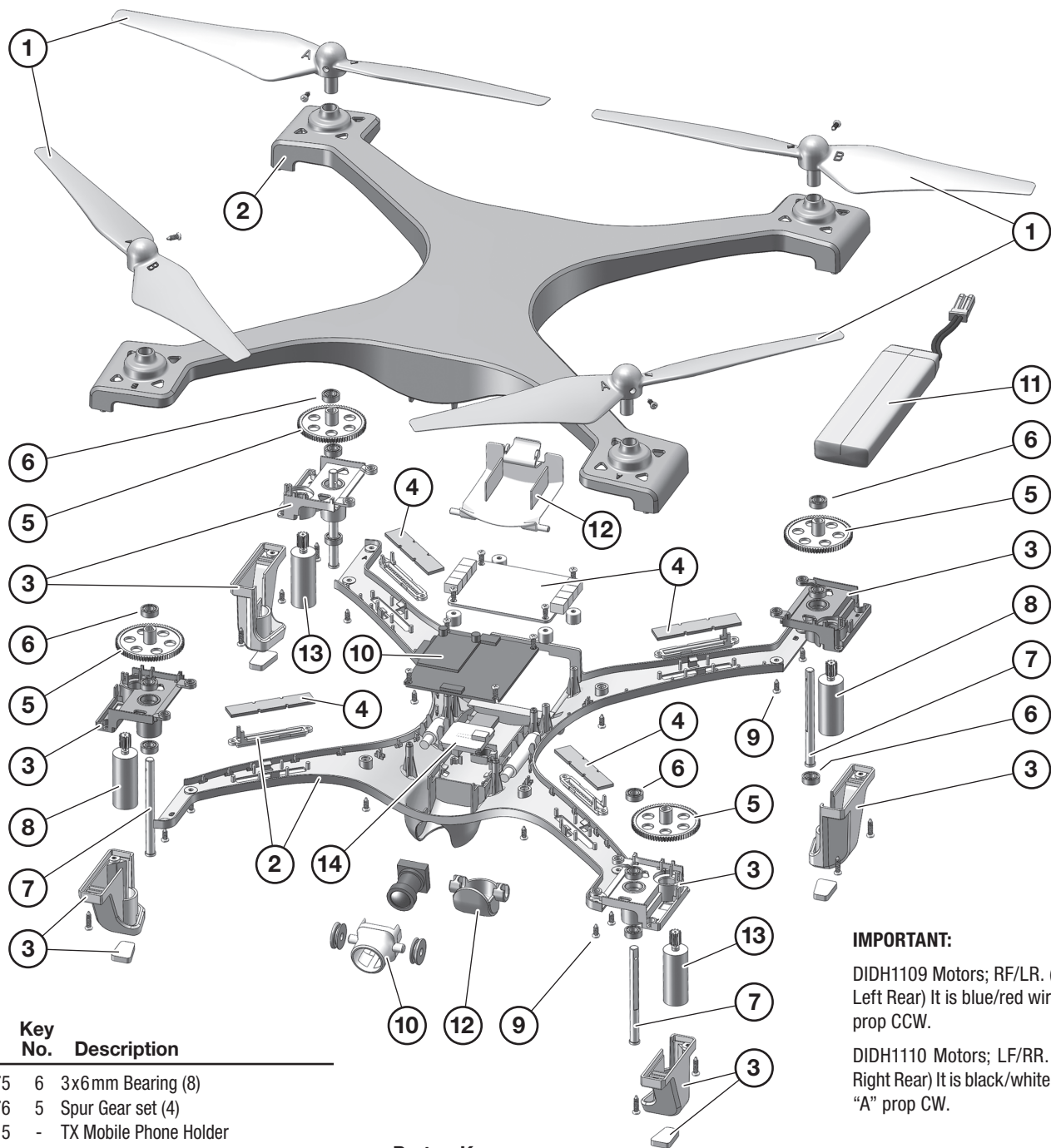
CAN ICES-3 (B)/NMB-3(B)
IC: 6157A-MR210, 6157A-DIDH1100C

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

REPLACEMENT PARTS



Part No. Key No. Description

DIDE1175	6	3x6mm Bearing (8)
DIDE1176	5	Spur Gear set (4)
DIDE1215	-	TX Mobile Phone Holder
DIDH0210	-	MR210 Transmitter Sync 251
DIDH1101	11	3.7V 900mAh 1S 30C LiPo w/ JST Plug
DIDH1102	4	Main Control Board Sync 251
DIDH1103	7	Prop Shaft Sync 251(4)
DIDH1104	9	Screw Set Sync 251
DIDH1105	3	Motor Pod Set, Left/Right Sync
DIDH1106	12	Battery Door, UAV camera cover Sync
DIDH1107	2	Top and Bottom Frame Sync 251

Part No. Key No. Description

DIDH1108	10	5G Wi-Fi 1080P Camera set Sync 251
DIDH1109	8	Motor (CCW) w/Pinion Sync 251 (2)
DIDH1110	13	Motor (CW) w/Pinion Sync 251 (2)
DIDH1111	14	Optical Flow Board w/sensor Sync 251
DIDH1112	1	Prop Set Sync 251 (White/Black, 2ea)
DIDP1121	-	USB Charger

IMPORTANT:

DIDH1109 Motors; RF/LR. (Right Front, Left Rear) It is blue/red wire. Spins "B" prop CCW.

DIDH1110 Motors; LF/RR. (Left Front, Right Rear) It is black/white wires. Spins "A" prop CW.

Optional

DIDZ1558	FPV Goggles
DIDE1277	Prop Set (red/black, 2ea)
DYNC2030	Prophet Sport Mini 50W Charger
DYNC0032	Charger Lead w/JST Female

www.dromida.com/support



www.dromida.com