Seahorse EX-2 Cuta-Copter Kontiki Drone

Thanks for purchasing your Seahorse EX-2 CutaCopter Kontiki Drone. These fishing drones are the culmination of many years of development to ensure your drone fishing experience is both safe, enjoyable and successful.

Fishing Drones combine the technology of avionics, electronics and robotics to create a flying machine. We add complexity by pulling a line from the beach over water. When flying a drone, you are a pilot with all the responsibilities that go with that. This includes ensuring everything is in good working order and operating and responding correctly before flying. If you have any concerns or worries while flying, release the load and return the KontikiDrone to the beach to land.

Remember - Always perform the pre-flight checklist.
Seahorse recommends you follow the training guide in this manual and only proceed to the next stage after you have mastered the current stage. You need to be comfortable flying so you can correctly respond to the actions of the KontikiDrone.

Seahorse offers one-on-one learn-to-fly lessons to teach the basics of drone flying. Details are on our website – www.seahorse.net.nz

Read and understand the manual before attempting to fly. This manual contains several warnings. This is based on what we have learnt the hard (and expensive) way. There is little room for error with flying and if you are not careful you could crash and maybe lose your KontikiDrone.

Your new Seahorse KontikiDrone has passed it's Quality Assurance checks and have completed several test flights before being released for sale.

PAYLOAD

The EX-2 is a very powerful fishing drone and can lift large baits or payloads. The EX-2 will happily pull 25 hooks out to 1000 metres or carry a large single bait up to 2.5kg's over a shorter distance. Most people are finding 13 hooks (one side of the traceboard is a good working number and this allows a larger weight to be used.

As the load increases, the flight characteristics of the drone will change including makes it slower to respond to control inputs. Larger payloads will result in higher wear and tear on the battery, frame and motors. Flight time is also reduced and your stress levels will be higher. It is best to develop your skills so you are experienced and comfortable before attempting large payloads.

INSTRUCTIONAL VIDEOS

This manual will step you through the operation of the Seahorse EX-2 KontikiDrone, but it is very difficult to describe all the steps and procedures to fly a drone. In addition to the manual, there will be instructional videos available online. These will be added to our website as well as on our YouTube channel.
It is recommended you watch the videos.
The Cuta-copter and the Ultimate Fishing Drones in Australia videos are also available to watch.

WARNINGS

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Seahorse. For up-to-date product literature, visit www.seahorse.net.nz

Read the **ENTIRE** instruction manual. Watch the instructional videos. Become familiar with the features of the drone before operating. Failure to operate the drone correctly can result in damage to the drone, personal property and cause serious injury.

The Seahorse fishing drones are large powerful machines that can cause damage and serious injury. It must be operated safely, responsibly and with caution. Seahorse fishing drones are not intended for use by children. Hooks are dangerous to the unwary.

- Keep children and animals clear of the KontikiDrone and the fishing equipment, including the Drone, line, hooks, and the winch (or reel).
- Ensure all users and helpers are instructed or trained in using the Seahorse products.
- Warn onlookers or passers-by of the dangers of the KontikiDrone, its likely flight path. Highlight the hooks and the location of the line.
- Operate your Seahorse KontikiDrone system Responsibly and be considerate of other beach users.
- Do not operate your Seahorse KontikiDrone system on a crowded beach, or among swimmers. You are not allowed to fly over crowds.
- Unplug the batteries when not in use (unplug the quick switch).
- Keep Clear of the Propeller at all times – Remove the propellers when not in use.
- Be aware of the tides and currents and where they could carry or drag your fishing line.
- Retrieve the fishing line if it presents a danger to other beach users.
- Do not use your KontikiDrone where it could endanger other beach users.
- Do not use your KontikiDrone where it could be a hazard to navigation of boats and ships.
- Do not use your KontikiDrone where it could be a hazard to aircraft, people or traffic.

- Seahorse recommends having a minimum separation of 400 metres between Beach fishers.
- Check for other beach users before launching your Seahorse EX-2 Drone. If there are other fishers already on the beach, find out where their line is and set your fishing line accordingly.
- Be aware of the local flying regulations, including restricted areas. Do not break them, as penalties could include fines and jail time.
- Be aware of the local fishing regulations, including size and bag limits. Do not break them, as penalties could include loss of your drone and equipment.
- Be aware of any dogs in the area. They love chasing drones. Seagulls also love attacking drones.

THESE DRONES ARE NOT TOYS

Safety Precautions

- Do not operate inside
- Do not operate near or over other people
- Always fly with a fully charged battery – never fly with a partially or fully discharged battery.
- Never fly with a faulty or damaged LiPo Battery. - Dispose of the battery immediately.
- Do not operate where there is strong radio interference, ie near radio towers or high powered overhead lines.

Indemnity

The user accepts all liability and responsibility for the safe operation of the Drone. The user understands that Seahorse cannot be held responsible for any damage resulting from an accident as well as any consequential damage.

- The user undertakes to only operate the Drone when they are competent in the operation of the craft.
- The user must understand the operation of the drone and the meanings of the various LED lights and messages.
- The user must be aware and knowledgeable of any local flight regulations that could affect the operation of the Drone.
- The user should arrange appropriate insurance if required.
- Only Seahorse is authorised to service and repair EX-2 Cuta Copter KontikiDrones in New Zealand
- You agree that by operating the KontikiDrone you are aware of the risks and have the know-how to operate the drone safety.

Register your drone with Seahorse to extend your warranty to nine months

Naming your Drone

A lot of people give their drones names. It is also good to put your name and phone number on your drone, transmitter and other equipment.
This will enable anyone finding your drone or equipment to contact you and return it.

Serial Number

The serial number of the drone is on the inside of the battery compartment of the drone. The serial number also makes up part of the Bluetooth name. For example, Serial Number R4100 will have the Bluetooth name of R4100 EX 2. The serial number is also noted in the manual.

What is in the box

1 * Carry bag backpack
1 * KontikiDrone
1 * SkyDroid Transmitter
2 * 18650 Lithium-Ion Batteries – Installed into the transmitter
1 * Smart LiPo Battery Charger
1 * Battery tester
1 * Landing Pad
2 * 5000mAh 6S high-performance batteries
4 * Carbon Propellers
1 * Manual and logbook

FIRST STEPS

Before learning to fly, there are a couple of steps to follow before you take off.

Charging the Battery

Seahorse has supplied a smart charger with the EX-2 KontikiDrone.
These chargers can charge different types of batteries including Lead-acid, Lithium Iron Phosphate (LiFe), Lithium-Ion (LiIo) and LithiumPolymer (LiPo) etc. It is important to choose the correct battery type. Using the wrong battery type will damage your battery and could cause the battery to catch on fire.

The batteries used in the Seahorse KontikiDrone is a LiPo battery. LiPo Batteries should not be left unattended with charging. Place the LiPo battery on a concrete floor or a metal tray when charging. Some people charge LiPo batteries inside a metal container.

Read the manual for the battery charger.
Before connecting the battery ensure you set up the charger to the correct settings for the battery.

Battery Type

- Choose - **LiPo**

Program

- Choose - **Balance Charge** for charging to 100% fully charged.
    - Remember to plug the Balance cable in
- Choose - **Battery Storage** for storing the batteries for a week or more.

Settings

Battery Capacity – 5000mAh
Charging Rate – 5AH
Cell Count – 6S (22.2v)
A LiPo battery can charge at 1AH for every 1000mAh's of capacity.

The battery will take approximately two hours to charge from flat, and 30 minutes from storage mode. Once complete, the charger will show the mAh's (MilliAmp Hours) going into the battery.

Here is a video showing the menu options on the charger.
https://www.youtube.com/watch

The Battery

Seahorse uses a high-performance 5000mAh (or 5AH) Lithium Polymer (LiPo) 6S, 25.2v battery.

- The Battery is made up of six separate cells linked in series to give 25.2 volts of power.
- The battery has the power lead with its yellow XT90 connector.
- The battery has a separate set of seven wires known as the balance cable. The balance cable connects to each cell in the battery and is used to ensure the cells are charged correctly and the voltage of the cells are balanced.
- A fully charged battery is 25.2v
- Storage mode will adjust the battery voltage to 23v.
- A discharged or flat battery is 21v.
- Never discharge below 20v or 3.3v per cell. This will damage the battery.

If you are not using the battery for a week or more, store the battery in storage mode.

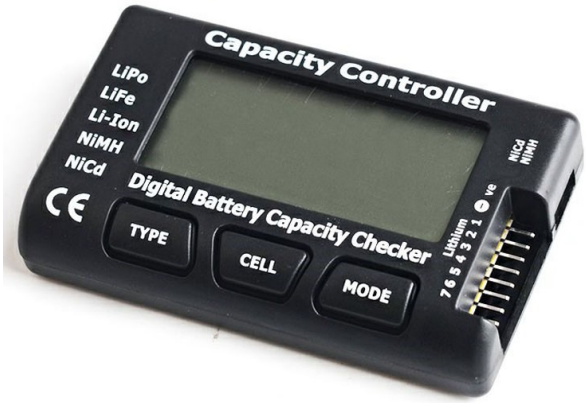
Do not use the battery

- if there is any visible damage to any of the cells,
- if the battery is swollen or puffy.
- The power leads or connector is damage.
- If the battery is not holding its charge.
- Large variance (>0.1v) in the voltage of the cells.

These are all signs of a faulty or failing battery and failure in flight could result in a crash.

The battery charger can operate from a DC or battery power supply. This means you could use an SLA (Lead Acid) battery to charge the LiPo batteries at the beach. The charge time will be up to one hour. One 14ah SLA battery would be able to charge one 6S 5000mAh LiPo battery.

Different battery types have different characteristics and this can affect how you use and treat the battery.

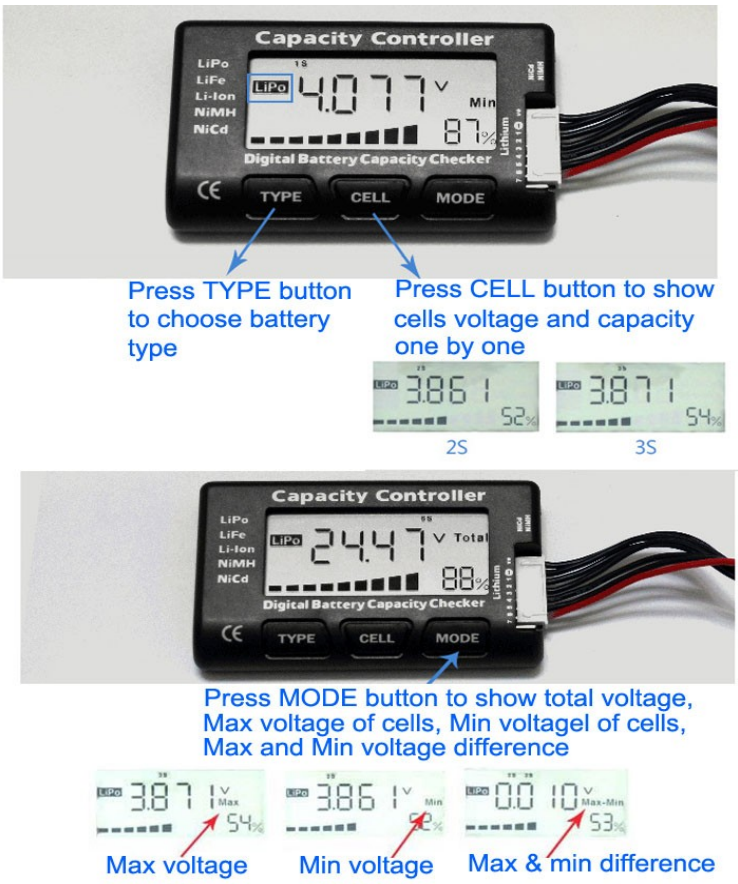


Checking Battery Voltage

Seahorse supplies a battery checker with the KontikiDrone. The battery checker will check the voltage of the battery and the voltage of each cell in the battery. Plug the balancer cable of the battery into the battery tester. The tested will BEEP, and then show the total voltage of the battery, followed by the voltage of each cell.

A fully charged LiPo 6S battery is 25.2V and each cell should be 4.20v. The cells may vary up or down by 0.02v (range 4.18v to 4.22v) Do not use if there is a variance greater than 0.2v between the cells.

Always fly will a fully charged battery. Do not fly with a partially discharged battery as you do not know how much energy or flight time is left in the battery.



Never fly with a battery that has a voltage reading less than 23 volts. This means the battery is 50% discharged and the safety margin is reduced.

The image to the right shows how the battery voltage checker works and what the different numbers are.

Otherwise, there are many videos on YouTube reviewing this checker and showing how it works.

Below is a link to one of them.

https://www.youtube.com/watch?v=LgHH8I8vuPU

Operating the Transmitter

Fully understand the operation of the transmitter (the controller) before you try flying. The transmitter is your control box which you use to control the flight of the KontikiDrone.

The EX-2 Kontiki Drone uses the SkyDroid T10 Transmitter. The T10 can operate as a normal transmitter or it can interface with an Android phone or Tablet. The Android App displays operational and flight telemetry including battery voltage, distance from home and altitude.

If the device accepts a USB feed, It can even display the video from the EX-2 on-board camera. The Transmitter batteries can be charged via a Micro USB (mobile phone) cable

The transmitter has two switches, 3 buttons and the two control joysticks.

- A long press on the middle button will turn the transmitter on – Wait for the four lights and beeps.
- Button A is the return to Launch (RTL) button.
    - The RTL is active when the button is backlit. (drone will flash
    - The drone will not arm(start) if RTL is active.
- Button B is the bait release
    - No backlighting - The release is in the up-and-hold position.
    - Backlit – the release is down and has released the bait.

The left-hand joystick controls the throttle and Yaw, which is rotating the drone clockwise or counter-clockwise.

- Pull the stick down reduce the throttle and to lose altitude
- Push the stick up to increase the throttle and gain altitude
- Position the stick in the centre to hover or maintain altitude
- Push the stick to the left to rotate the drone counter-clockwise (to the left)
- Push the stick to the right to rotate the drone clockwise (to the right)
-

The right-hand joystick controls the forward and sideways movements of the drone.

- Push the stick up and the drone will fly forward
- Pull the stick down and the drone will fly backwards
- Push the stick to the left and the drone will fly to it's left
- Push the stick to the right and the drone will fly to it's right.
- Position the stick in the centre to hover or maintain position

The joysticks are spring-loaded and will automatically centre themselves. When flying, ease the sticks back to the centre to ensure a smooth transition between actions. Operate the joysticks by pushing them into the position required, allowing the self centring to work.

Do not control the joysticks with your thumbs on top as this does not allow the self centring to work to your advantage.

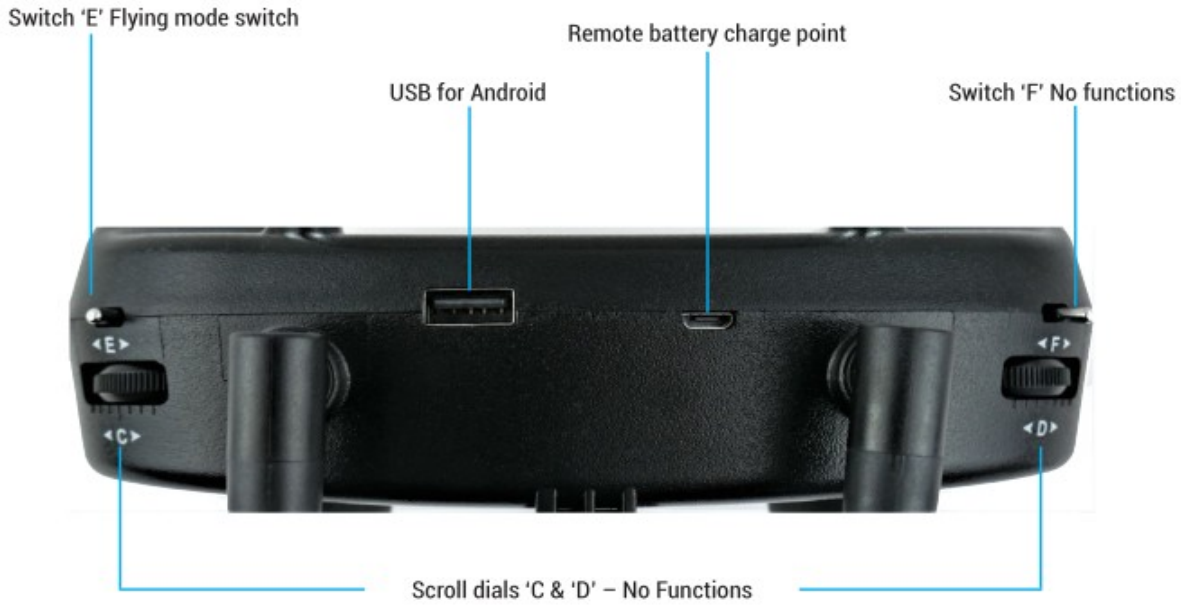
IMPORTANT:

These movements are based on the drones situation and direction, not yours. For example, if the drone is facing you the movements of the drone will be opposite to what you may expect.

The transmitter is powered by two 18650 Lithium-Ion Batteries that are supplied and these can be charged by connecting the USB cable to a USB charger.

The twin antennas provide redundancy and they can be position either both pointing up. Or one up and one pointing sideways. They need to be perpendicular to the angle to the drone to ensure maximum reception. If the ends are pointing towards the drone, you risk losing connection with the drone.


Switch 'E' Flying mode switch
Switch 'F' – No function
Throttle/Direction
Aileron/Lift
Lanyard connection
Battery level indicator
'A' Return to launch
'B' Bait release
Power On/Off


Switch 'E' Flying mode switch
Remote battery charge point
USB for Android
Switch 'F' No functions
E
F
C
D
Scroll dials 'C & 'D' – No Functions

Flight Modes and Functions

Led Warning Lights

It is important to understand the various warning lights for the safe operation of your craft – ensure you fully understand each one.

- **Flashing green** – ready to arm. Will show 3D in the top right of Skydroid Tower app.
- **Faster flashing green** – Ready to Arm and it is in SBAS mode with better positioning data. Will show 3D & DGPS in the top right of Skydroid Tower app.
- **Solid Green** – The drone is armed ready to start and launch. Press throttle forward to lift off.
- **Flashing orange** - There are insufficient Satellite connections (no 3D fix) to launch, or the RTL activated or LOW battery RTL.
- **Flashing orange before launch** – The Drone battery voltage is too low. Check battery level on phone is above the low voltage failsafe. Replace the battery with a fully charged battery.
- **Flashing Blue** – lost GPS satellites – If the drone is in the air, switch to ALT hold mode to regain control.
- **Radio beeping** – The Transmitter is not connecting with the drone. The most likely cause is no power on the drone. Connect a battery and plug in the Quick Switch.

Mode Switch 'E'

- The top **LEFT SWITCH** on the remote controller "E" is the flying mode switch.
- Switch **Full right** = Loiter mode (GPS mode)This is the recommended flying mode to use.
- Switch **Middle** = ALT (Altitude) Hold is a stable self-levelling mode without GPS assistance. The drone will maintain an altitude, but it will drift with the wind. All users should learn to fly in this mode in the event of satellite loss.
- Switch **Full left** = POS (Position) HOLD (GPS mode) – This is similar to the Loiter mode, but it has a slower or softer braking action for a reduced pendulum effect.
- *Make sure that you have good space around you when using POS MODE as the drone will take longer to stop and hold its position.*

Modes and Functions

LOITER Mode

The main flying mode is “Loiter Mode” (Far Right position on switch E) This is a GPS mode and is speed limited to 34kph. Do not fly at full speed to avoid reel over-wind. Loiter mode also has a positive control response and more direct drone braking.

POS Hold

POS Hold can also be used. (Far LEFT position on switch E) This mode has been optimized for BAIT LIFTING, as it has a controlled de-acceleration to assist in limiting the extent that a pendulum might be exacerbated. DO NOT push the right stick ALL the way forward whilst flying out a bait, as the drone can achieve a higher speed that may over-wind your reel. Practice flying so that you can become familiar with the EX-2 flying speed. In POS HOLD mode the drone will drift slightly after stick centring. This is to help reduce the pendulum effect when lifting a bait. Make sure that you have good space around you when using this mode. Do not fly at full speed in this mode. High speed of over 70kph can be achieved and this can cause the drone to spin if the pilot is too aggressive on the stick. Always try to release the sticks slowly.

ALT Hold

Alt hold - this is a NON-GPS mode (Middle position on switch E) but has automatic altitude hold, but it will drift with the wind. It has very stable and responsive flying characteristics. This mode can achieve high flying speed, avoid excessive speed or the drone could spin out. Always release the right stick slowly when reducing drone speed. Everyone should learn to use this mode in case the GPS signal is lost.

RTL – Return to Launch

RTL (Return To Launch) By pressing button “A” on the face of the radio, this will activate RTL (return to launch). Pressing it a 2nd time will de-activate RTL and the drone can be piloted manually. If the A button is highlighted with a blue backlight, then this means that it is in RTL mode. The drone will not arm if button A is BLUE (meaning RTL is activated).

Once you have flown your drone out to the line drop location, press button “B” to release the bait/line and then release the right stick slowly to slow the drone down. Tick button “A” once. The blue light will highlight the button and this will activate the Return to Home.

In the first phase of RTL, the drone will fly itself back to above the Take-off zone at about 35kph. Once it reaches the launch site it will start to descend, and the pilot can re-position the drone whilst it is descending. Once landing is detected the system will stop the motors. Always wait till the props have completely stopped spinning before approaching the drone.

During RTL, the DRONE light will FLASH ORANGE

Once the motors are stopped, click button “A” once to exit RTL mode. The drone cannot be armed if in RTL mode.

If the battery level is still sufficient, the system will allow you to re-arm and take-off again. If the light flashes ***ORANGE continuously*** and does not turn green, then the low battery failsafe has been reached and the drone will NOT start motors. It is time to change the battery in the drone.

Always turn on the transmitter before powering up the drone. This will ensure you have control of the drone from the moment you power it up.

The Seahorse EX-2 Cuta Copter Fishing Drone

The EX-2 has the pilot and peoples safety at the centre of the design. The drone hardware like frame, bait release, flotation etc, are only one part of the equation. How the drone flies and regulates the pilot's instructions are an essential element in assisting with the protection of your asset and the people around you, the pilot.

Flight Controller – The EX-2 features the Pixhawk 4 Mini, one of the most advanced flight controllers on the market. The Pixhawk 4 Mini features a 32-bit ARM® Cortex® M7, 216 MHz Processor with 2Mb flash memory and 512kb RAM. Breaking that down into layman's terms - It Rocks! The sheer speed data is processed results in supreme flight stability, and this is especially noticeable when carrying baits in high winds. In addition to the onboard magnetometer and barometer, it has not one, but two Gyroscopes, two compasses and two accelerometers! – Feel assured of ultra-reliability as redundancy is built-in.

SkyDroid T10 Transmitter – This high-quality transmitter is fitted with sand covers over the gimbals to improve the overall weather resistance. Flush mounted buttons and low-profile toggle switches have been used to prevent damage. The 2 x 18650 lithium batteries provide greater than 20 hours of radio time on a full charge. The T10 Transmitter also accepts telemetry data and live video feed from the EX-2 which it passes onto the SkyDroid Tower App.

SkyDroid Tower App control – The Android APP displays a range of flight telemetry data including battery voltage, distance from home and altitude. It also allows the user to plan and fly missions, plus the App can control and change various functions, such as the flight mode.
The APP enables drone parameters to be changed wirelessly - (For advanced users only).

Water Proofing – In total there are 3 air chambers. The main electronics chamber which contains the flight controller, the battery bay and the camera pod. Each chamber has a water-tight seal. For additional protection, most of the electronics including the ESC's are sealed in Di- Electric resin in case the main seals become damaged.

Double flotation – The 3 air chambers provide the first level of flotation protection. The EX-2 is also filled with laser cut foam buoyancy providing the second level of flotation protection. The landing feet also provide additional floats.

Quick Switch – The installed quick switch limits the need to open the battery bay between bait drops, the craft is quickly switched on and off using the supplied quick switch.

Backpack – The EX-2 Cuta Copter comes with a backpack carry case that will carry the EX-2, the landing pad, batteries and props. It can also carry the charger and Android device.

Real-time Video Stream – The EX-2 is equipped with an HD 720p digital reef spotting camera which has a real-time video transmission up to 1000 metres. Camera settings like brightness, contrast and saturation can all be adjusted via the APP. Recordings of the Video feed can only be done in Skydroid FPV (another App) and is not available in SkyDroid Tower.

SkyDroid FPV - This App can record the live video feed to the android device. The Android device needs to be connected to the transmitter by the supplied USB cable and it can run in the background and record while you are flying.

Robust Design - Cuta Copter has always prided itself on building the toughest drones on the market, and the new EX-2 takes it a step further with even greater survivability.

Waterproof Electronic Bait Release – The bait release mechanism is fully waterproof.

GPS – The New advanced PIXHAWK 4 GPS enables concurrent reception of up to 3 Global Navigation Satellite Systems 'GNSS' not just two such as GPS and GLONASS it deals with GPS, Galileo, GLONASS and BeiDouh – in layman's terms – It Rocks! The GPS has as also been located to the highest point of the craft for the best satellite reception and maximum separation from other electronic parts in the craft to improve reliability and precise landings.

Landing in water – the EX-2 can land and take off from water. Rough water will impact the ability of the craft to take-off, as waves will interfere with the prop lift. Following saltwater exposure, extreme cleaning is required with a product like Salt-Away. Metal parts in the motors will corrode and reduce the drone's life if not treated properly. Intentional landing on water is not recommended for everyday use. If the craft flips over in the water, loss of radio signal is likely so recovery of the drone could be difficult.

Follow-Me mode - In this mode, the drone will follow the location of the transmitter or phone.

Boat Landing or Return to Me mode – this feature allows the drone to land (RTL) at the location of the pilot and not at the take-off point. This function is useful when using the drone on a boat which has drifted away from the original take-off co-ordinates, or you want the drone to land away from its launch area (away from the fishing rods). This is called 'Return to Me' in the Skydroid Tower app.

Multiple Safety Features

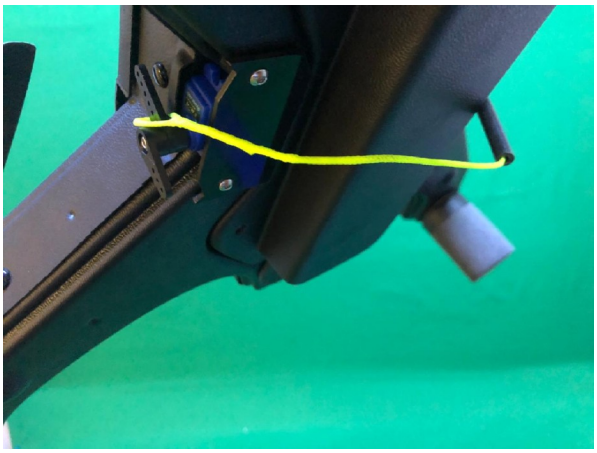
- **APP display and voice.** Visual and voice messages are broadcast to keep the pilot informed about all aspects of the flight. The system will warn you by voice and display that the battery is low, height, voltage or when Magnetic interference is detected. - a set of earplug headphones could be useful to hear the messages.
- **Thrust Loss Detection** will automatically release the bait and RTL.
- Low Battery Failsafe – The Low voltage failsafe level is set at 22 volts. On reaching this, the bait/line will be released automatically and the EX-2 will automatically Return to Launch (RTL).
- **Loss of signal Failsafe** – If the EX-2 loses connection with the transmitter, the bait/line will be released automatically and the EX-2 will Return to Launch (RTL).
- **World Magnetic Database** - This means the compass calibration is only required to be done once – We will do this at the Seahorse Factory.
- **Launch prevention mode** - The EX-2 will not ARM or start the motors unless everything is working correctly. This includes having sufficient GPS Satellite connections and sufficient voltage in the battery.
- **Anti-pendulum feature** - The POS mode has a softer and slower de-acceleration to assist in limiting the degree to which a pendulum motion can occur with the bait. This allows for shorter leaders to be used with safety.
- **RTL speed** – Return to Launch 'RTL' speed has been increased to get the drone off the water as soon as possible.
- L**anding detection** – The new landing detection feature DURING AUTO-LAND will shut off the motors as soon as the drone detects a landing. Motors will also be shut off if it detects a crash. For RTL landings, the EX-2 will begin it's descent quite fast, slowing down for the last 5 metres. For manual landing, it is required to hold the left stick down. Do not move the right stick once the drone is on the ground.
- **Distance and Altitude Geo-fence** - Although the EX-2 can operate up to 1.5kms- the Geo-fence settings are set at the factory to 1200 metres distance and 60 metres altitude. This geo-fence parameter allows enough battery time for the drone to return safely when the low battery self protect function is enabled.
- **Magnetic interference monitoring** - Auto adjustment and verbal warnings.
- **BlackBox recording** – The BlackBox will record the flight telemetry which can be accessed by Seahorse to assess flight performance and identify any issues.

The Seahorse EX-2 KontikiDrone is a development of the REVO4 and Matrix drones. The EX-2 is designed as a fishing drone, waterproof with to ability to float and take off from the water. designed to pull hooks and baits out to sea.

Drones only fly because they have counter-rotating propellers, the front left and rear right propellers rotate clockwise and the front right and rear left rotate counter-clockwise. Another way to view it is the propellers rotate into the ends of the drone.

The propellers are fitted with easy screw on/screw off attachments and the motors have the matching part.

Release System



The release line is permanently attached to the left bottom side of the drone and the release is on the right-hand side of the drone.
There is a loop at the end of the release line that loops over the forward arm of the release horn. Ensure the line stays forward of the release horn so it doesn't tangle on release.

Attaching the Propellers

Match the colours of the attachment on the propellers to the matching colour on the motors. Match silver to silver and gold to gold.
The propellers screw on in the opposite direction to the rotation of the motor. The front left will screw on counter-clockwise and the front right screws on clockwise. The propellers will self tighten as the motors are running. The screw thread runs the same direction of the pitch on the prop. Follow the pitch of the propeller - Wind the prop backwards and down to fit, and up and forward to remove.
To remove the propellers, hold the motor and push the propeller in the direction of normal rotation. Front left is clockwise to remove.

Connecting the Battery

The battery is installed into the battery compartment situated on the bottom of the EX-2 KontikiDrone.

- Remove the Quick Switch plug.
- Turn the drone upside down inside the backpack and not to put the motors in the sand.
- Undo the quick release screw, slight the retainer back and open the battery compartment.
- Insert the battery and connect the to the XT90 plug.
- Tuck in wires and slide the lid back into place and secure with the quick release tab.
- If you want a fully waterproof battery compartment, use the four screws provided and screw into the four screw holes.

SkyDroid Tower App onto an Android Device

The SkyDroid Tower App can be downloaded and installed onto an Android device, such as a Samsung phone.

If you have an Apple device, it is possible to download an Application such as QGroundControl, which will give similar features.

The big advantage of using the Skydroid Tower App is the additional information that is displayed on the screen including

- Battery voltage
- Flight Mode
- Altitude
- Distance from home
- Flight Telemetry
- and a Snail Trail of the flight.

It is also possible to create flight missions and activate and fly the mission from the device.

We have found a 6-inch phone or an 8-inch tablet is a good size to use.

Installing the SkyDroid Tower App.

The app in the google play store is an old version and should not be used.

You can download the App from the Seahorse website

https://www.seahorse.net.nz/product_details/p/160/c/58/SkyDroid%20Tower%20App

or go to

Seahorse.net.nz on your Android Device

1. Click on the menu bars (top right)
2. Choose products
3. Choose KontikiDrone
4. Choose SkyDroid Tower App
5. Click to Download SkyDrone-Tower

Once it has downloaded the skydroidtower_v7.0.4_official_release_apk

1. click open
2. open with the Package installer

As the package hasn't been downloaded from the play store, you will need to allow the installation of apps obtained from unknown sources.

1. Go to settings
2. In settings, click yes to unknown sources (for this installation only)
3. Install.
4. Open App and allow access as required.

Turn on Bluetooth and pair to the transmitter.

The PIN is 1 2 3 4

In the App click on Connect situated in the bottom left-hand corner
Select the transmitter (for example R4100-EX-2) to connect and once the drone is powered (battery connected and quick switch in), the telemetry data will be transmitted to the screen.
There are two main screens we will use. Flight Data and Editor. The other screens are linked to set-up and aren't needed for day to day use.

Flight Data Screen
The Flight Data screen is the "go-to" home screen. This is where the flight and drone telemetry is shown. It is also where you connect to the drone. You can also arm the drone and flight any missions you have created in the editor screen.
The flight data screen shows a google map (need phone Internet connection) and the icons down the left side allowing the map to be centred on the home location (you) or the drone. The third icon will open and close the flight telemetry.

Across the top you have

- Battery status – click to get the voltage
- Flight mode – click to change flight mode
- Transmitter transmitting data
- Distance from Home
- Altitude
- Satellite Status - click for the number of available satellites.

You can click on any of these and get more data for each area.
The three-dot menu manages your missions and disconnection from the drone.

Across the bottom, you have "connect", once connected this is replaced with
ARM – This will arm the drone before takeoff if the drone is ready to be armed.
Dronie – This is a selfie taken from a drone.

The Editor Screen
The Android device will need it's GPS location turned on.
First centre the map on the home location,
Across the top you have

- Set a waypoint (this is the one we use)
- draw a flight path
- Select an area
- delete
- undo

To create a mission to drop a bait

1. Centre on Home or move the map to the location you wish to fish.
2. Select set a waypoint

3. Click on the screen where you want to set the waypoint (where you want to drop the bait)
    1. Make sure this is within the range of your available battery power from where you intend to launch from.
4. This will create a green marker and a green square along the bottom of the screen.
5. Click on the green square and a window will open
6. Select the altitude you want to fly at (50 metres)
7. Click on the blue header and select EPM Gripper – this is the command to make the drone drop the bait/line
8. From the three-dot menu
9. Export to file to save for later or
10. Upload mission – this will upload the mission to the drone. You generally upload the mission once you are at your fishing location.
11. If you upload, you will be asked if you want to append a take-off and RTL to your mission – Generally, you will answer yes. If you answer no, you will need to do program the launch and RTL yourself.
12. This will add a launch and RTL (green boxes) to your mission.

Return to the Flight Data screen

1. ARM the Drone
2. Launch

The drone will then fly the mission you have uploaded.

Regulations

A Drone is an aircraft and therefore is controlled by aircraft flying regulations. Special regulations for drones include

- Must not fly over 120 metres in altitude – EX-2 is limited to 60 metres
- Must stay within line of sight – EX-2 is limited to 1200 metres
- Must not fly over private property unless you have the prior permission of the landowner
- There are special rules for flying within restricted air space, including four km's of an airport or hospital.

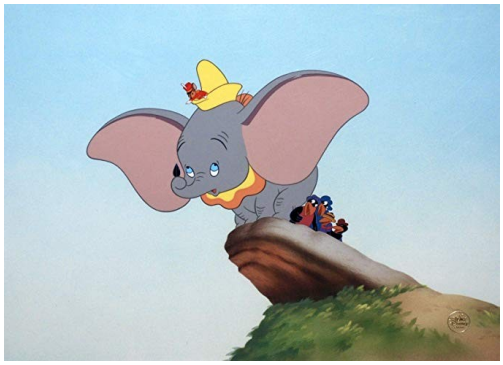
New Zealand has a great website resource called **AIRSHARE** that will help show you where you can safely fly your drone. The Website is here - https://www.airshare.co.nz/

Download their App to your phone. The resources include maps showing the restricted air space in New Zealand along with some of the contact phone number you may need.

They also have an online course called DRONE 101 that teaches you the rules and safety procedures you should follow.

Another good resource is https://www.flyyourdrone.nz/ which outlines the rules regarding the flying drones.

LEARNING TO FLY

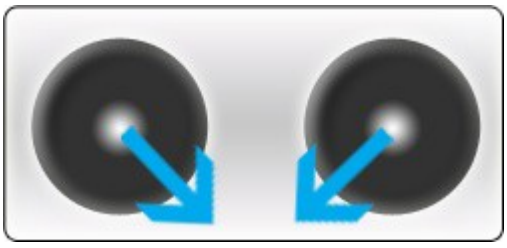


Learning to fly by trial and error can be both expensive and dangerous. Follow the stepped process noted below.
There is a theory test at the end of this manual to test and enforce your understanding of the operation of the EX-2 KontikiDrone. The EX-2 can be flown with the transmitter or combined with the App.

1. Learn the Transmitter

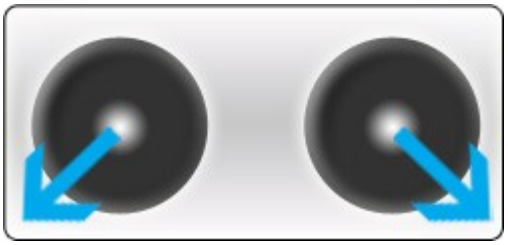
The first thing to learn is the operation of the transmitter. The safest way to learn is to do pretend flights with just the transmitter. This way you can practice using the switches and joysticks and learn the correct process.
First, you need to learn to ARM (turn on) and DISARM (turn off) the motors.

To ARM



Before you can fly you need to ARM, or turn on the motors. Once you have landed and finished flying, you need to DIS-ARM or turn off the motors if they don't turn off automatically.
To ARM - to pull both joysticks down and inwards (towards the middle) and hold for approx. Two seconds. Once the motors start, release the joysticks.

To DIS-ARM



Once your KontikiDrone has landed it should automatically DIS-ARM, if not, you will need to manually DIS-ARM.
To DIS-ARM is to pull both joysticks down and outwards (towards the sides of the transmitter) and hold until the motors stop, which will be approx two seconds.
DO NOT DIS-ARM while the drone is in the air – it will stop flying and crash.

Practice first with just the transmitter. You can practice later with the Drone. If you are practising with the Drone remember "NO" propellers.

Practice a flight with the Transmitter only

A good way to understand the transmitter is to practice the movements and actions with the transmitter by itself performing pretend flights.
Perform several pretend flights to learn the procedure.

- Switches into the correct position
- Turn on Transmitter
- Arm Motors (pretend motors arm)

- Once arms, push throttle to full throttle to climb (pretend drone is flying)
- Ease throttle back to the centre to hover
- Push the right joystick forward to fly forward.
- While flying forward press button B to release the baits.
- Ease right joystick back to the centre to hover
- Press A button to engage RTL. The EX-2 will automatically return, land and turn off.
- You can guide the drone left and right, front and back as it descends to land.
- Once the drone has landed if needed DISARM.

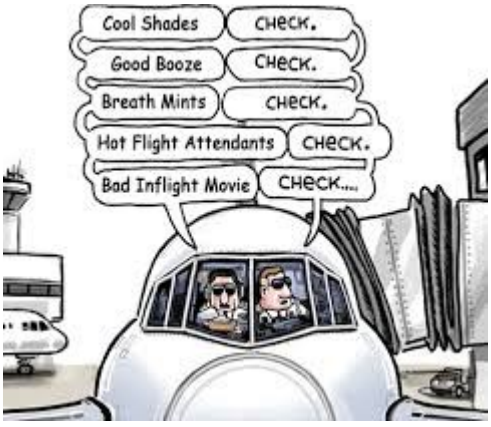
The important step is to centre the joysticks before engaging RTL
Get comfortable with these steps before risking your drone.

2. Learn the App.
The SkyDroid Tower App provide additional options and information, so it is important to learn the App. To see how the App works, position the Drone where it can get a lock on the satellites (by a window or outside), connect the battery and power up with NO propellers.
Power up the Transmitter and open and connect the App.

With everything connected, you will be able to see the data shown on the screen, including the battery voltage and the number of satellites.
With the App, you will be able to arm and disarm the drone, edit, and upload missions.

Pre-Flight Checklist
Before flying **ALWAYS** complete the pre-flight checks.

Preflight check



- Turn on the transmitter and check its battery level (4 lights equal fully charged).
- Check the switches and joysticks of the transmitter are operating correctly and moving freely.
- Check battery voltage with the battery checker to ensure battery is fully charged – 25.1 to 25.2v.
- Check to ensure all the cells in the battery have similar (><0.1v) voltage Approx 4.2v per cell.
- Check all propellers are not damaged or unbalanced.
- Check the propellers are screwed on tight.
- Check the drone for any damage or any loose parts.
- Insert the battery into the Drone and insert the Quick Switch.
- Connect the App.
- Check the battery voltage in the App.

Pre fishing check

- Test the release clip is operating correctly with the transmitter.
- Check the fishing line is on the release line and the release line is positioned correctly on the release.
- Check the fishing line is passing under one of the rear feet and is running straight and tight to a weight (up to 16oz) approximately one metre along the line. This will stop the line from getting sucked into the propellers.

Area check

- Check other beach users are clear of the flight area and the water in front of you is clear of swimmers etc.
- Warn anyone close (watching) what is going to happen and the need to stay clear.
- Check the weather conditions that it is still safe to fly.
- Check there are no obstructions in the flight area or boats moving along the shore who may cross in front of you.

Prelaunch check

- Check transmitter is turned on
- Load the battery onto the drone and connect the battery plug, secure the battery box.
- Plug-in the Quick Switch.
- Open and connect the App
- **DO NOT MOVE THE DRONE UNTIL GREEN LIGHT IS FLASHING.**
- **A SLOW flashing GREEN list indicates a 3D GPS lock. A FAST flashing GREEN light indicates a better more accurate DGPS GPS lock.**
- If LED is showing ORANGE do not fly.

Practice with the Drone

The EX-2 is a large drone and you need a large area to comfortably fly it. Seahorse recommends performing your practice flights in a park or other open area (school sports field). Drones are affected by the wind, so it is better to practice on a calm day that is not too windy.
Always turn the Transmitter on before plugging a battery into the Drone.

Practice 1

Practice ARM and DISARMING the motors to see how the motors react to the commands.
You can do this with either no props or with props on the motors.
This can be done with the Transmitter and the App.

Practice 2

Practice take off, hover and landing.

- It is easiest to stand 5 to 10 metres behind the drone.
- Control the joysticks with a loose pinch grip, pushing the joysticks in the direction needed. Do not use with your thumbs pressing on top of the joysticks as this is unstable and causes erratic flight.
- Arm the motors.
- Once the motors start, slowly apply throttle until it is just above halfway (say 60%) the Drone should slowly lift off.
- Apply some more throttle and the drone will increase the rate of climb. In Loiter mode, there will be a slight delay in responding to the throttle.
- Take off to five to ten metres and ease the throttle back to the centre and hover.
- When ready – reduce the throttle slowly to just below halfway (say 40%) and the drone will start to lose altitude – remember there is a slight delay to responding to the throttle
- Once the drone has landed pull the throttle down to zero and the motors should turn off automatically.
- DISARM if required.

WARNING

* If the drone will not hover in one place it is likely the compass calibration process will need to be redone. See instruction later in the manual.
* DO NOT pull the throttle all the way down when flying. This will make the motors idle and the drone will fall out the sky.
* If the drone suddenly starts flying erratically in GPS mode, it is recommended to switch to ALT mode (E switch to the middle position) to take full manual control over the flight of the drone.

Practice 3

Same as Practice 2, but once you are hovering try flying forward, backwards and side to side. You can also yaw left and right.

If you need to, you can let go of the right joystick and it will automatically self-centre bringing the drone into a hover.
Once it has landed throttle down and the motors should stop.
DISARM if required.
Please note, if you yaw, the drone may move in an unexpected direction. If you get disorientated or confused, press button A for the RTL.

Practice 4
Practice flight in ALT mode
Before ARMING, move switch E through the different flight modes, from Loiter to ALT and POS modes. In ALT mode, the drone will drift with the wind.

The ALT mode gives you total control over the drone as the GPS (fly by wire) inputs are not used. You may use the ALT mode if you need to take control of the drone and manually fly or land it. Always check the throttle is centred before switching to flight mode to ensure the drone maintains a stable hover.

WARNING
* If the drone suddenly starts flying erratically in GPS mode, it is recommended to switch to ALT mode.

Practice 5
Practice RTL (Return to Launch) Function.
The RTL function has two stages, the first is to return to drone to the launch location and the second is to land.
In Loiter mode - Take off and fly up to 30 metres.
Fly forward 100 to 300 metres away
As you are flying forward, Press Button B to perform a pretend release
Now press button A to perform the RTL
Once the drone arrives overhead after a short delay it will begin it's the descent to land
Once it has landed throttle down and the motors should stop.
DISARM if required.

What could possibly go wrong!

- The drone does not fly back to you.
    - Check to see joysticks are centred
    - Check that button A is backlit (active). If not press again to get the backlighting.

        - Or manually fly the drone back to you by pulling the right joystick down towards you. You may need to add in some left or right to fly in the correct direction if the drone has yawed.
- You can also use the App to RTL. Click on the flight mode icon (top middle left) and select RTL and press OK.
- The drone will not automatically descend
- Pull the throttle down (lefthand joystick)
    - This will instruct the drone to descend and land.
- You can also use the App to land. Click the Land icon (bottom left) and this will instruct the drone to descend and land at its current location.
- If this doesn't work, change flight mode from Loiter to POS.
- Pull the throttle down (lefthand joystick)
        - This will instruct the drone to descend and land.
- You lose sight or orientation of the drone
    - Don't panic
    - Centre the joysticks to bring the drone into a hover.
    - Press button A and check it becomes backlit.
    - The drone should automatically begin its return journey back to you.

Practice 6

Repeat practice 5, but fly out to 500 or more metres.
The App will display the distance from home.

Practice 7

Do a flight with a load under the drone.
Tie a line onto a one litre milk bottle fill of water and connect to the release line. Have the bottle on a line two or three metres long. This will help to reduce the pendulum effect.
After flying with a small 1kg payload you can try a 2kg payload to see the difference.
The EX-2 will fly for five or more minutes with a 2kg payload.

Practice 8

Seahorse recommends doing a practice flight with your fishing gear to ensure everything works how you are expecting it to work.
This is best with a second person watching your reel so they can warn the pilot of any issues.
The pilot should have their finger on the release button B ready to release if there is an issue.
Seahorse recommends fly out slowly to ensure the fishing reel, line, hooks and traces are operating as expected.

Practice 9

The App allows you to create a mission. If you are thinking of fishing this way, now would be a good time to practice creating a mission and flying it. Keep it short and simple (launch, waypoint and RTL), thus reducing the chance of an error.

Time to go Fishing

You have completed your practice flying and you now feel ready for your first fishing trip.

Test Flight

Seahorse recommends performing a short test flight to ensure the drone is operating correctly and the weather (wind) conditions are as expected. A simple 30 second up, out, back and land flight should suffice.

Line set up

You will need to put a loop or a 12mm ring on the end of your line so the fishing line can hand from the release line. This also allows the fishing line to slide off the release line when released.
Place one or two 6oz spike weight (with the folding back wires) one metre along the line. This will pull the line away from the drone during flight keeping it away from the propellers. A rubber band over the wires will increase it's holding power.
The simplest hook section is a length of nylon (monofilament) with a small loop tied every 1.5 to 2 metres, to which you can attach a short trace to.
Seahorse recommends using 80 to 135lb braid as your mainline. Braid has the advantage of not stretching and it behaves better as it comes off the reel. Braid is lighter and easier for the drone to pull. Nylon or Monofilament is generally too heavy to use and it requires better management as it comes off the reel.

Laying out the line for launching

It is best to connect the fishing line before connecting the battery to the drone. Carbon propellers can cause significant injury.
Feed the release line through the ring on the end of the fishing line and place loop on to the release horn.
Place the fishing line under one of the rear feet and directly out to the weight – keep the line tight.
Lay the hook section and traces along the beach leading away from the drone. A handful of sand on the line will help to keep the line under control. And have your reel in free spool and ready for the deployment.

Take off

After completing the pre-flight checks, take off and perform a steady climb to 30 to 50 metres or until all the hooks are off the ground.
After climbing, ease the throttle back to the centred position. The drone will maintain it's altitude.
Now push the right joystick forward and the drone will start flying out to sea. Do not go too fast.
Be ready to release the line at any time.

You need to release the line while the drone is moving, otherwise, all your traces and hooks will end up in a pile with everything in a tangle on the seabed.
You can release the line as the drone is flying out to sea, or if you get to the distance limit of 1200 metres, the drone will stop and hover. If this happens, simply fly the drone to the left or right for approximately ten seconds and release as the drone is moving. This will lay your hooks sideways at the limit of 1200 metres.

If you are using the Seahorse winch with 1000 metres of line, drop as the line changes from the 80lb braid to the 300lb braid. The drone will be 1000 metres out and still moving forward, thus laying your hooks out in the line.

Once the line has been released, select RTL by pressing button A. The drone should now start flying home. Once the Drone arrives above you, it should start to descent and land as it did in the practice flights.
Once the drone lands, the motors will stop.
Use the landing pad to minimise the sand blown around by the propellers.

Fishing
Braid (even sinking braid) is lighter than water and it will tend to float on the surface. By keeping tension on the line, you should be able to pull the line tight and the line underwater. Be aware of any boats in the area. If it looks like a boat is going to cross your line, start winding in to get the line tight and pulled under the water.

TECHNICAL INFORMATION

Fail-Safe Protection

The EX-2 has built-in Failsafe protection. If the drone loses transmitter signal or the battery voltage drops to a certain level (22v), the drone will attempt to return home and land. The Failsafe will only work if the drone is flying in one of the GPS modes as it will need to use the GPS to find its way home.

If you notice the drone returning home before you have released the line, immediately release the line. This will reduce the load and the current draw on the battery and will give the drone a better chance to fly home.

Maintenance

The EX-2 is easy to look after and there is minimal maintenance needed, But the beach and marine environment are harsh on equipment.

- Treat your battery and EX-2 connectors with Corrosion X
- Do not leave your EX-2 in direct sunlight or a hot car for extended periods.
- Wipe any salt spray or moisture after using near the sea. Remove any sand after using near the beach.
- Test the battery connections for every flight. The fit should be tight and firm. If loose, replace the connectors as soon as possible.

If you have a hard landing, the plastic rivets that hold the body together could come loose. If you have any loose rivets, pull it out, separate the barrel and the shaft. Align the holes of the outer and inner skins. Insert the barrel into the hole through both skins, followed by pushing the shaft into the barrel and locking everything back into place.

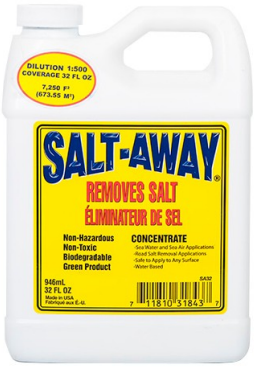
Saltwater Exposure

Saltwater is corrosive and it can do a lot of damage to your drone if left. While the EX-2 is waterproof, if left, the saltwater will ultimately damage the wiring and the motors. Water or salt moisture damage is not covered by warranty. Onshore winds will carry a lot of moisture and salt inshore. If you need to clean your sunglasses or your windshield of your car, you will need to clean your drone.

Drone received a mild water splash and no water in the frame

As the EX-2 is waterproof, you can give it a good wash with warm soapy water or with a product such as SaltAway.

- Wash the outside of the drone with a salt removal product like SaltAway or warm soapy water. It is OK to use car washing liquid, but not dishwashing liquid as that has salt in it.
- Rinse.
- Dry off with a cloth.



- Leave in a warm dry place to dry (hot water cupboard). Do not leave in the direct sunlight as this could overheat the frame.
- Wipe the outsides of the motors with Corrosion X to prevent any rust.

If you have any concerns please contact Seahorse and we are also happy to perform any repairs and test flights required.

Trouble Shooting

The transmitter will not turn on.

- Batteries may be flat - recharge the batteries in the transmitter.

The motors will not arm or start

- Check all the buttons, switches and joysticks are in the correct position.
- Check battery voltage – ensure the battery is fully charged at 25.2v
- With the battery disconnected – check the rotation of the motors.
- Check you have a GPS lock (green flashing LED)

The Drone will not take off

- Check the battery voltage.
- Check the propellers are installed correctly and rotating the correct way.

One motor will not spin when ARM and throttling up

- Call Seahorse – it could be a damaged or faulty motor
- With the battery disconnected – check the rotation of the motors.

The drone is suffering vibrations or the shudders

- Land immediately Something is unbalanced
- Check the propellers and motors are not damaged or unbalanced
- Check the drone for loose parts

The drone will not hover in one place – it wanders or hovers in a large circle

- The compass is out of calibration – Land and calibrate the compass.

Power drops off when wiggling the battery leads

- There is possible damage to the battery wires or the connectors
- Check the connector fit is firm and tight – not loose
- Try a different battery
- Do not fly as there is a risk of power failure – call Seahorse for advice.

Maintenance

Compass Calibration

Seahorse has calibrated your EX-2 and it shouldn't need to be re-calibrated again. But, if the drone is hovering in a circular motion (toilet bowling) this is a sign the compass will need re-calibrating. Pixhawk4 mini's advanced GPS has a Worldwide database enabling compass settings to remain current. There are two ways to calibrate the craft via the remote controller or the App.

Method 1 – Via App

Click the top left menu icon on the APP and select Compass Calibration from the dropdown menu – follow the on-screen directions (rotate on all axis) and do not forget to remove the Quick Switch after successful calibration to save. Ensure you are facing North when calibrating the drone.

Method 2 – Via Remote Controller

1. To activate the calibration mode, you need to move the left stick to the top and full right. Hold it there until you hear the BEEP from the drone. When you hear the buzzer beep a regular tone/beep, rotate the drone on all 6 AXIS for 1 minute until you hear another beeping tone. Check the video tutorial on how to do this.
2. Remove the Quick Switch to turn the power off from the drone and re-power in the same way above to SAVE the compass settings
3. Check the phone for a 3D fix on the top right.

If after the calibration the craft is unsteady or toilet bowling, land the drone safely and redo the calibration process.

Any problems, please call Seahorse.

After Flight Maintenance

Drones require responsible operators that keep safety a top priority. To keep your drone safe, you will need to maintain it properly. Drones require regular onboard electronic maintenance and frame and motor care.

Clean everything regularly. Do the accelerometer calibration once per month or when the system warns you. View the video on ACC calibration. Do the voltage meter calibration when the battery voltage is not displaying accurately.

Voltmeter Calibration

Check the voltage reading on the app to the actual voltage of the battery by using the battery Voltage/Cell checker. Connect (balance cable) the checker to the battery that is connected to the drone.

To check and set the voltmeter via the APP, go to App menu at the top left and select parameters - Scroll down and select parameter: BATT_VOLT_MULT

If the voltage on your phone is reading low compared to the actual battery voltage, then increase the BATT_VOLT_ MULT value by 0.01 at a time until the Phone reading matches the reading using the BX100 meter on the battery.

If the reading on the phone is low, then *increase* the BATT_VOLT_MULT by 0.01 at a time and check the external meter as above.
If the reading on the phone is high, then *decrease* the BATT_VOLT_MULT by 0.01 at a time and check the external meter as above.
Press Upload on the phone App to save the new values.

Accelerometer Calibration
Accelerometer and GYRO calibration can be done wirelessly from the phone APP. This feature means that you do not need to connect to a PC to perform this maintenance. 6 Axis ACC calibration should be done at least every 4-8 weeks for regular drone users, or if any warning messages are received from App.

Corrosion Treatment
Use Corrosion X spray (plastic friendly) on the motors. Blow motors out with compressed air if sand is ingested (gently). Treat all battery terminals, switch and on drone with Corrosion X spray.
Saltwater exposure care

Seahorse will check and do these calibrations whenever we service or do work on the drone.

Theory Test – This is a multi choose test - Answers at the end.

1. Where is the best place to do your first test flight?

1. Inside so no-one can see if you make a mistake
2. A large open area like the local park
3. Bugger that – I'm off fishing, it can't be that hard, I will learn as I go.

2. How close to an airport can I fly?

1. As close as I want. Air Traffic Control will keep the other plans away.
2. Generally, there is a restriction flying within 4 km of an airport. It is best to check before flying in a new area.

3. What is AirShare? - Hint – the answer is here - https://www.airshare.co.nz/

1. AirShare means I can fly anywhere as the air is shared.
2. AirShare is an App I can load onto my phone which shows me where I can and cannot fly, plus heaps of other useful information.

4.After I have connected the battery - What is the best thing to do with the drone?

1. It is best to pick it up and move it around so it can get a GPS lock quicker.
2. Leave the Drone on the ground and don't touch it until the green light flashes.

5. When is the best time to hook the fishing line onto the KontikiDrone?

1. Hover the drone and connect the line while the drone is flying – it looks really cool!
2. Connect the line before I connect the battery.
3. Just after I have connected the battery as I have time waiting for the flashing green light.

6. How many flights can I do on one battery?

1. As many as I can – The drone has a low voltage failsafe.
2. The best practice is using a fully charged battery for each flight as you can never be certain of how much energy is left in the battery.
3. If I check the voltage first, it will be OK.

7. How often should I get my KontikiDrone serviced?

1. Once every six months – it's a lot cheaper than having to replace it.
2. Only if something is broken
3. Never – It's a high tech product and it should run forever.

8. Should I store the LiPo batteries fully charged so they won't build up memory.

1. No – LiPo batteries do not build up memory. If storing a LiPo battery for more than a week, then I should store the battery in storage mode.
2. Yes – All batteries need to be stored fully charged so I can go fishing whenever I want.

9. Is it safe to approach the drone with the propellers moving?

1. Yes – they are only small motors – they won't be able to do much damage.
2. No – While the motors are small they are powerful and the carbon propellers are sharp. They will cut off fingers and cause serious injuries.

10. It's best to fly the line out as fast as possible as this saves battery power?

1. No. Full speed uses more power and it increases the chance of the line tangling on the reel
2. Yes. It spends less time in the sky.

11. If the line of bait does not release, is it time to panic?

1. Yes, Panic – The world has ended!
2. No – simply fly the drone back to the beach and land. This can be done by the pilot or using the RTL feature.

12. I have a brilliant idea for my drone and I want to modify it – Is this a good idea to check with Seahorse first?

1. No. It's a brilliant idea and it will work.
2. Yes, It's worth a phone call to check. It might not be such a good idea after all and it will invalidate the warranty.

13. Do I need to take off from flat level ground?

1. Yes, the drone needs to know what way is up.
2. No. The drone can take off from uneven ground, but it is best to ensure it is clear of obstructions to make the landing easier.

14. Do I need to manually DIS-ARM on landing – Is this good practice?

1. No – the drone will automatically dis-arm on landing
2. Yes – the drone will automatically disarm, but it is good practice to disarm manually as this ensures the motors are DISARMED.

15. I am not sure about flying – is there anyone who can help me?

1. No – toughen up and go for it.
2. Yes – Seahorse offers one on one learn to fly lessons

16. When is the best time and way to drop the line?

1. It is best to drop the line and hooks when the drone is moving.
2. It is best to wait until the drone has stopped at the limit of 1200 metres. That way I get out as far as I can.
3. Any time – it doesn't manner.

Answers

1. B. The EX-2 is a large drone so you need a large open area to fly. A local park or sports field is best.
2. B. The general rule is 4km's but there are special rules for busier airports. Hospitals have heliports and they are classed as airports. Check the AirShare maps to see the restrictions.
3. B. AirShare is an App that provides a lot of information about where you can fly and the regulations governing unmanned aircraft including drones.
4. B. Make sure everything is ready and organised before you connect the battery. Then leave the Drone alone and wait for the light to flash green. The green flashes are indicating the autopilot has calculated the home location so it can fly home. The EX-2 will not ARM if it does not have a 3D GPS lock.
5. B. Connect the line before connecting the battery. It is safer and there is no chance of upsetting the flight controller.
6. B. The best practice is to always take off with a fully charged battery. You never know how long your flight will be. If you are doing short flights, then it is possible to manage the battery voltage and make a decision on the battery status. Never use a battery showing less than 23V as that is more than 50% discharged.
7. A. Seahorse recommends every six months. Drones are high-performance machines that need to be kept in excellent working condition.
8. A. Storing LiPo batteries fully charged will shorten their performance life. The best practice is to store in storage mode and only fully charge when you are going to use them. If you do not use them, it is best to return them to storage mode.
9. B. No. The motors are almost as powerful as the motors on the Seahorse Kontikis. They will do serious damage.
10. A. No. The best airspeed is 20 to 25km/hr. That is 2 to 2 1/2 minutes of flight time to get to 1150 metres. Fly at a speed where the line is coming off the reel at a reasonable speed. Remember the faster you are going the less time you have if something goes wrong.
11. B. DON'T PANIC. Calmly fly back to shore and land. You can use the RTL feature.
12. B. Call Seahorse. We have seen more bright ideas than you have had hot dinners. Learn from others mistakes.
13. B. The EX-2 drone can take off and land on uneven and uneven ground, but it is best to have reasonably level ground. It is best to have a reasonably open area for take-off and landing. Trying to land on top of a rock is not easy.
14. B. EX-2 has Landing Detect and will turn off the motors and disarm as soon as it lands. If the motors don't stop automatically, then you will need to dis-arm manually. The drone will only disarm automatically if the landing surface is reasonably level.
15. B. Seahorse offers a range of "one on one" "learn to fly" lessons ranging from one hour at the Seahorse factory to a whole day at a beach near you. These range from getting you off the ground to stepping you through the various steps including flying a line out to sea. These lessons are weather dependent.
16. A. The best time to drop the line is when the drone is moving. This will lay the hooks in a line. If the drone is stopped, then the hooks will fall into a heap on the seabed.

Seahorse KontikiDrone Service Log
Retain with KontikiDrone

Model	EX-2 Pro
Serial Number	
Date Purchased	
Owner	
Contact Phone number	

Item	**Seahorse**	**6 month**	**1st Year**	**6 month**	**2nd Year**	**6 month**	**3rd Year**
Date							
Technician							
Firmware Update	Yes						
Gyro Calibration	Yes						
Gains Checked	-						
Acc. Calibration	Yes						
Compass Calibate	Yes						
Voltage Calibration	Yes						
Flight Controller	-						
ESC's	-						
Transmitter	Yes						
Receiver	-						
Motors	Yes						
Propellers	Yes						
Frame	-						
Body/Flotation	-						
Legs	-						
Connectors	Yes						
Wiring	-						
Release & Line	Yes						
Batteries	Yes						
Test Flight to Alt.	Yes						
GPS & Stab Mode	Yes						
RTL	Yes						
Recommendations							

Seahorse KontikiDrone Flight Log
Retain with the KontikiDrone

Model	EX-2 Pro
Serial Number	
Date Purchased	
Owner	
Contact Phone number	

Pilot	Location	Date	Flight Time	Autoland	Issues / Signed
Factory	S. Africa		5 minutes	Yes	
Factory	S. Africa		5 Minutes	Yes	
Seahorse	Tauranga		5 minutes	Yes	

Pack Checklist

Packed By	
Date	
Drone Type	
Serial Number	

Item		**Check**
KontikiDrone	Drone	
	Propellers	
	Battery Holder	
Batteries	Note Number	
Transmitter		
Charger		
Battery Checker		
Seahorse Drone Manual		
Landing Pad		