SplashDrone4

User Manual

SwellPro

Thank You

Thank you for purchasing the Splashdrone 4 (SD4). We have designed and manufactured the SD4 to the highest quality standards.

Like any marine equipment, long-life and trouble-free operation relies on correct care and maintenance. With proper care and maintenance, you should enjoy your drone for many years. After flying in salt or contaminated water, always thoroughly rinse your SD4 in fresh water immediately after use or before salt and sediment can dry inside moving parts.

It is important to familiarize yourself with the features of this unique drone by carefully studying this manual and particularly the priority sections indicated in the Table of Contents.

Check www.swellpro.com for the latest manuals, software and tips. Refer to the Version Information section at the end of this manual, which details additions and corrections to this manual.

Using this Manual

This document is designed to be printed or viewed on a computer or mobile device. If used electronically, you can search directly for terms like "Propeller" to find references. Additionally, you can click on any topic in the Table of Contents to navigate directly to that topic.

Video Tutorials

Visit and subscribe to the SwellPro YouTube channel for instructional videos and product information. Scan this QR code with your camera phone to go to our channel.

Social Media

Join our exclusive user groups on Facebook to meet other people who share their adventures with SwellPro. www.facebook.com/swellpro/

Register your Product Warranty

Please ensure you register your product as soon as possible to ensure warranty coverage. www.swellpro.com/

Download the NaviFly App

Get the most from your SD4 by flying with the NaviFly app. This new, powerful mobile app enhances and optimizes operation of the SD4. Connected wirelessly to the SD4 remote control, the app allows logging, planning, recording of missions as well as the control and parameter setting of cameras and other modules in flight.

Running the NaviFly app when you fly adds advanced functionality like mapping, routing and intelligent modes to the standard flight modes in the remote control.

Scan this QR code to download the latest version.

Table of Contents

Product Overview

The SwellPro Splashdrone 4 (SD4) is the latest evolution of the waterproof drone.

This **all-new** drone represents over seven years of design improvements and experience - resulting in the most powerful all-digital floating & flying platform SwellPro has ever built. A new benchmark for waterproof drones. Simply put, there is no drone in the world like it.

With its modular multi-functional payload system, open interface design and surface navigation mode, the SwellPro SD4 can quickly adapt to different tasks in the field. The SD4 is the 5th generation of waterproof drone from SwellPro – the pioneer and innovator of waterproof drones worldwide.

High-visibility, innovative waterproof body design

The design of the SD4's fuselage brings together SwellPro engineers' deep experience and understanding of waterproof drones, materials and processes. Its structure is simple in design, attractive in appearance, lightweight, strong and most importantly functional. The body has been designed to facilitate upgrading, repairing or replacement of parts as well as supporting various custom modifications thanks to integrated mounting points. A hinged, waterproof hatch makes changing the slide-in battery module fast and easy.

Powerful propulsion system with tuned flight computer

Following 24 months of intensive R&D, the SwellPro SD4 marries new motors, digital reflux speed controllers (ESC), an all-new custom flight computer and gyroscope to deliver a fully featured multi-purpose flight platform. Able to fly in challenging weather conditions with variable loads, your SwellPro SD4 provides a reliable and flexible solution to the challenges of operating safely over water for long distances.

Waterproof motors

The newly designed 3510 motors have strong and stable performance with high load-carrying capacity and excellent flight performance. The motors have been specifically designed for the marine environment with premium materials, excellent waterproof coatings and salt-water rated bearings to resist damage from salt and sand in the marine environment.

Microprocessor Controlled Intelligent Drone Battery

Each slide-in SD4 battery has its own integrated microprocessor controller, teamed with 6500mAh of high-performance lithium technology cells to provide up to 30 minutes of flight time.

Payloads up to 2kg

The SD4 can comfortably lift a payload of 1.5kg with a maximum payload weight of 2kg.

Integrated Anti-collision Strobe

On the top of the SD4, a bright white aircraft anti-collision strobe helps the pilot and other aircraft pinpoint the drone in low-light and darkness - meeting the regulatory requirements of many regions. The strobe can be activated or deactivated in flight by NaviFly app.

Fully waterproof IP66-rated multifunction remote control

The SwellPro SD4 digital remote control has been carefully designed to provide worry-free operation in harsh environments whilst remaining easy to use. Its IP66 rating ensures that it is protected from strong jets of water as well as sand and debris.

Using new advanced wireless digital radios, the SD4 can broadcast its image over 5km while airborne. Innovative adjustable antennas can be setup to maximize range depending on the requirements of the mission being flown. When flying just 0.5m above the water, range is still up to 2.8km and floating on the water surface the transmission range is 500m.

The integrated #18650 batteries provide a maintenance-free power solution for the remote control and up to 8 hours of battery life or 12 flights per charge.

A high-brightness 2-inch digital display provides critical aircraft telemetry and flight data giving the pilot real-time aircraft status even when flying without a tablet or phone attached and the built-in GPS module allows the SD4 to include the pilot's precise location in its flight calculations, enabling real-time tracking and dynamic return-home functions, such as returning to a moving boat.

To ensure waterproofing of the remote control and connected devices, the SD4 remote control provides for high-speed Wi-Fi connections rather than cables. A pioneering design allows multiple devices to be connected simultaneously, allowing different apps and devices to be used at the same time during flight.

Drone Components
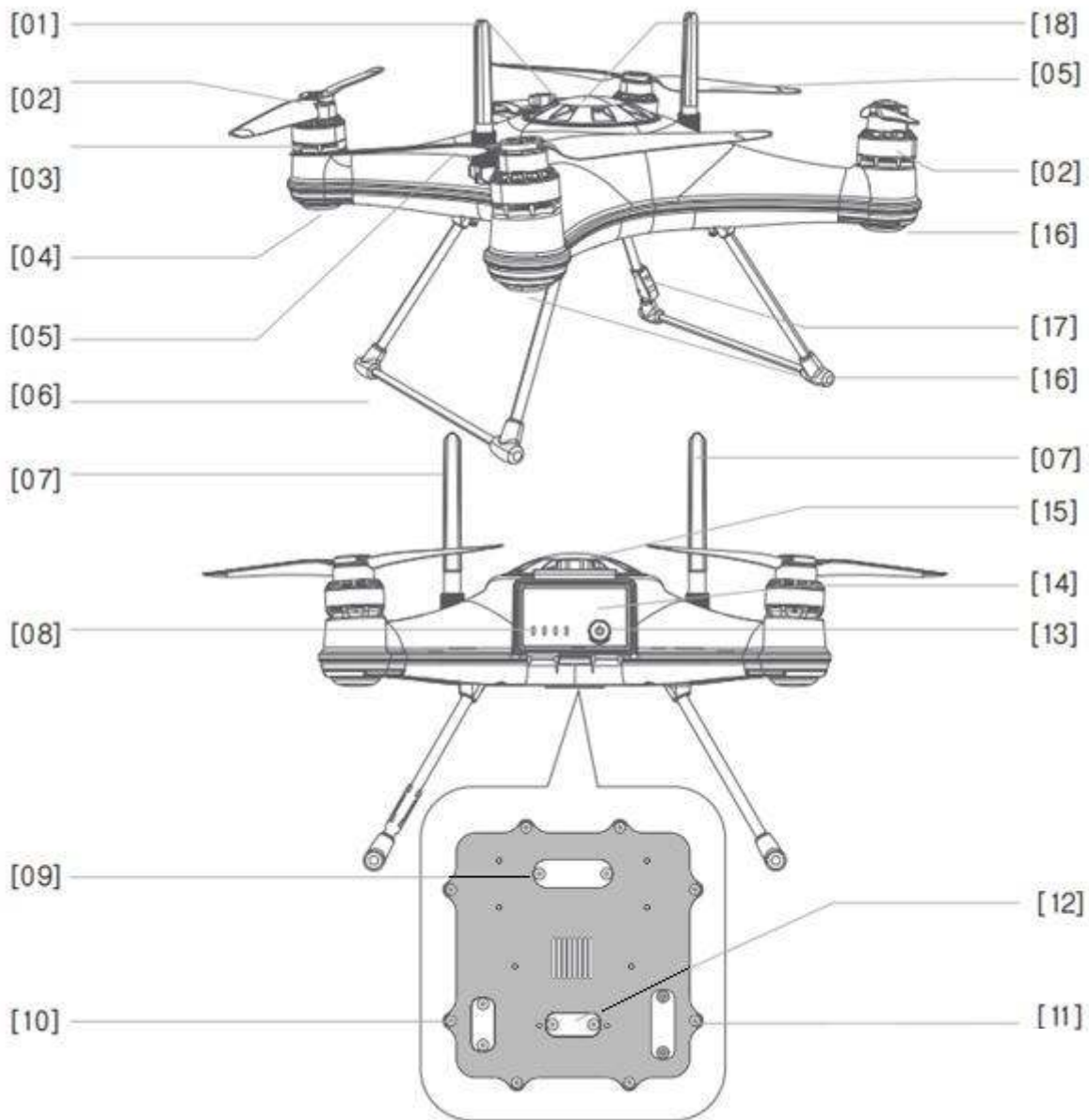
[01] Anti-collision beacon

[02] CW (clockwise) Propeller

[03] Waterproof motor

[04] Rear Arm Light

[05] CCW (Counter-clockwise) Propeller

[06] Landing Gear

[07] Antennas

[08] Battery Status Indicator

[09] Gimbal camera interface

[10] Payload Accessory Interface

[11] SDK Interface

[12] USB Port and Pairing Button

[13] Power Button

[14] Battery Hatch

[15] Battery Hatch Lock

[16] Front Arm Light

[17] Compass Sensor

[18] GPS top cover

Remote control Components
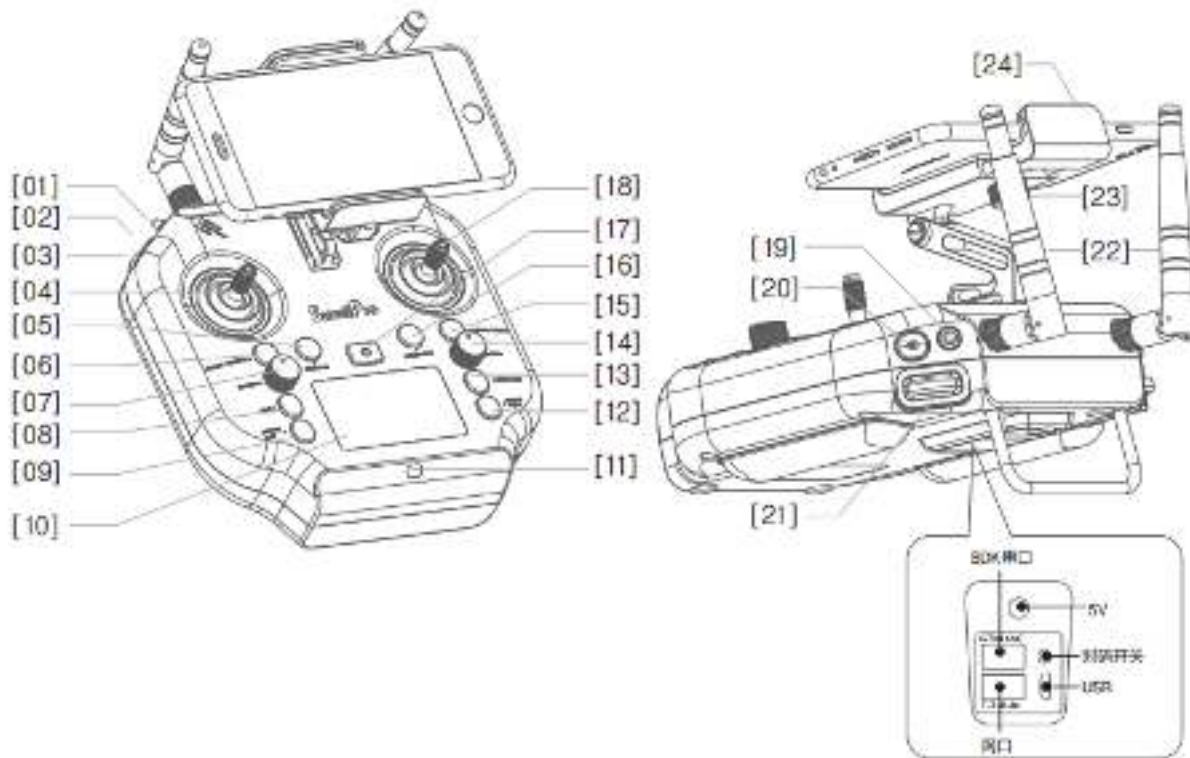
[01] Automatic Landing Gear Switch

[02] Video Start/Stop Button

[03] Pan/Tilt Wheel

[04] Left Joystick (Throttle/Yaw)

[05] Follow Switch

[06] Smooth+ Yaw Selector Switch

[07] Smooth+ Yaw Control

[08] Ship/Surface Navigation Selector Switch

[09] Left Payload Release Switch

[10] Display Screen

[11] Charging Indicator

[12] Right Payload Release Switch

[13] Gimbal Control Mode Switch

[14] Smooth+ Roll Selector Switch

[15] Smooth+ Roll Control

[16] RTH Return Home Button

[17] Power Button

[18] Right Joystick (Pitch/Roll)

[19] Flight Mode Selector Switch

[20] Camera Shutter Release Switch

[21] Gimbal Pitch Roller

[22] Antennas

[23] Phone/Tablet Clamp Adjustment Nut

[23] Phone/Tablet Mount

Remote control Screen
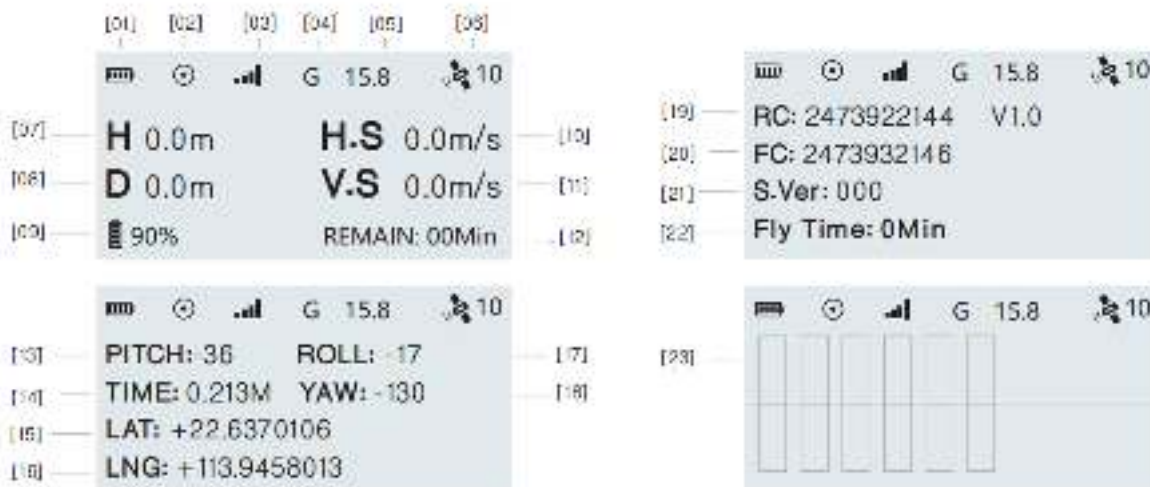
[01] Remote control Battery Level

[02] Remote control GPS Location Locked 1

[03] Drone Signal Strength

[04] Flight Mode

[05] Drone Battery Voltage

[06] Drone GPS Location Accuracy 3

[07] Drone Height from Take-off Point

[08] Drone Distance from Take-off Point

[09] Drone Battery Remaining Charge

[10] Horizontal Air Speed

[11] Vertical Air Speed

[12] Estimated Remaining Flight Time

[13] Forward Pitch Angle

[14] Flight Time

[15] Current Drone Latitude Position 4

[16] Current Drone Longitude Position 4

[17] Sideways Roll Angle

[18] Drone Yaw (Compass) Angle

[19] Remote Control Serial Number Firmware Version Number

[20] Flight Controller Serial Number

[21] Flight Controller Firmware Version

[22] Total Flight Time

[23] Joystick and Control Input Data

Notes.

1. A flashing GPS Location Fix icon [02] indicates that the remote control does not have a current location fix. This does not relate to the drone's GPS accuracy.
2. Flight Modes: **G**: GPS mode, **A**: ATTI mode, **C**: Circle mode, **H**: Headless+ mode, **F**: Fixed Speed mode, **M**: Manual+ mode, **B**: Boat/ Surface Navigation mode
3. Drone GPS Location Accuracy ranges from 1-10 with 10 being the highest accuracy. A rating of 10 indicates a drone location accuracy <1m. 9=1.1 meters; 8=1.2 meters, 7=1.3 meters, 6=1.4 meters, 5=1.5 meters. In GPS mode, it is recommended to take off with at least 5.
4. If the signal to the drone is lost for any reason, the remote control will display the last known location of the drone.

Drone Indication Lights

The fuselage of the aircraft includes drone status indicator light (red) and GPS signal status indicator light (green). Their location is shown in the figure below.

Rear Green LED

Front of drone

Forward Red LED
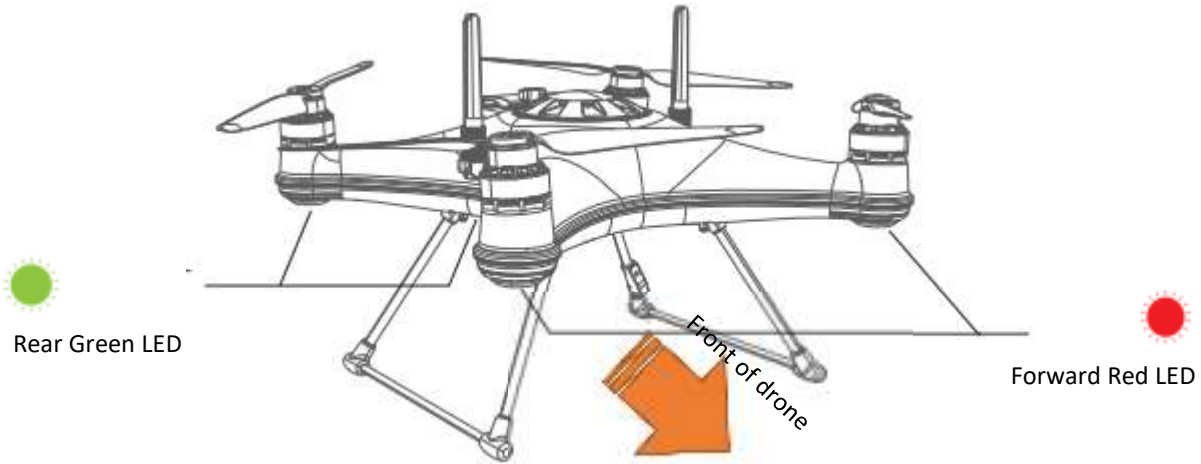
The nose LED indicator is used to indicate the direction of the aircraft's nose. These lights will glow alternatively red and green during startup.

The aircraft status indicator lights on the rear arms indicate the current status of the flight control system. All navigation lights can be turned on or off through APP settings

GPS Status

 Steady Green - Good GPS signal

 Fast Flashing Green - **Poor** GPS signal

Low battery warnings

 Two Red Flashes - First level low battery warning. Land as soon as possible.

 Fast Red Flashing - Second level low battery warning. Drone will auto land.

AUTO Returning Home

 AUTO returning home

Calibration Warning

 Red/Green slow flashing. Sensor calibration required. Refer to the remote control screen for details.

Propellers

The SD4 has two pairs of propellers - two clockwise propellers and two counter-clockwise propellers. The hub of each motor shows the type of propeller used for that motor. Propellers cannot be accidentally attached to the wrong motor.
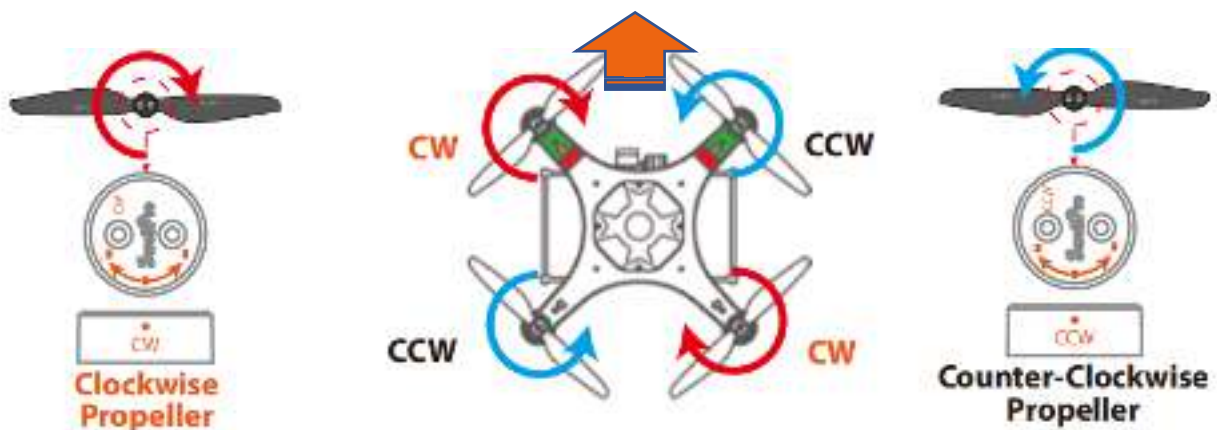
Attaching and Removing Propellers:

⚠ **Note** : Always place one hand under the motor to support it when installing or removing propellers.

Failure to provide this support could result in bending or breaking the landing gear.

1. Check that the propeller rotation (CW or CCW) matches the motor hub. This is the normal direction the propellers spin during flight.

2. Rotate the propeller in the hub until it engages, then push the propeller downwards and rotate it 1/8th of a turn in its opposite direction to lock it. So a CW (clockwise) propeller is locked by turning it counterclockwise.

3. Check the propeller is completely locked by checking that the dots on the propeller and hub align or by holding to motor hub firmly and ensuring that the propeller cannot be turned.

4. To remove propellers, support the motor with one hand and press the propeller down and then rotate it 1/8th of a turn in its normal direction to unlock it from the hub. So, CW (clockwise propellers) are unlocked by turning clockwise

The blades are sharp, please be careful to avoid personal injury.

Prior to each flight, please check that the propellers are smooth all over and are correctly installed and securely fastened.

Spin each propeller by hand to check that the motors are free of sand or salt and spin freely

Intelligent Battery

Each slide-in SD4 battery has its own integrated microprocessor controller, teamed with 6500mAh of high-performance lithium technology cells to provide up to 30 minutes of flight time.

The SD4 intelligent battery provides:

1. Real-time power monitoring and alerting
2. Integrated balance charging to ensure battery health, safety and long life by constantly monitoring battery health, state-of-charge and temperature.
3. Fast, slide in battery replacement. Integrated connectors allow for wire-free installation and replacement.
4. Battery charging and usage data logging to allow for better battery management and event recording.
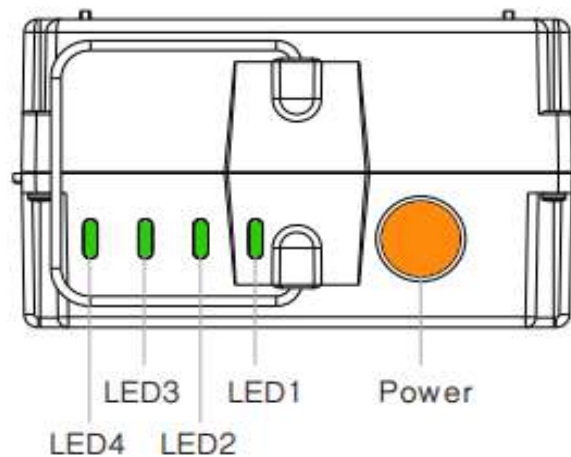
Checking the charge state of the battery

The battery level LEDs on the battery pack allow you to check the state of charge of the battery quickly and accurately.

With the Battery turned OFF, briefly press the power button – the battery LEDs will indicate the state of charge.

LED1	LED2	LED3	LED4	Remaining Battery Charge
▮	▮	▮	▮	88~100%
▮	▮	▮	☀	76~87%
▮	▮	▮		63~75%
▮	▮	☀		51~62%
▮	▮			38~50%
▮	☀			25~45%
▮				13~25%
☀				0~12%

Powering On/Off the Battery

Briefly press the power button, then press and hold the power button for three seconds to turn the battery on or off.

Charging the Batteries

Your SD4 is shipped with partially charged batteries. Ensure the drone battery and the remote control battery are fully charged before use.

The drone and remote control batteries can be charged simultaneously using the supplied AC charger.
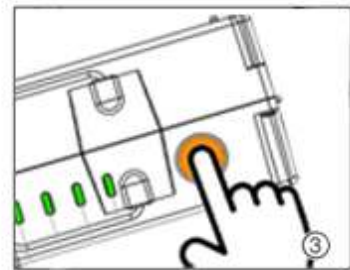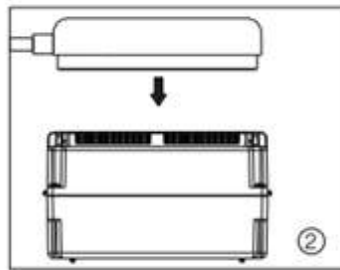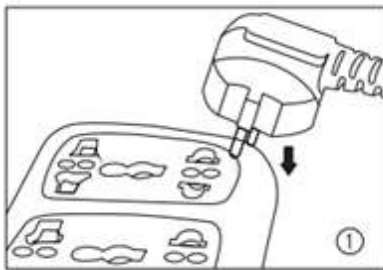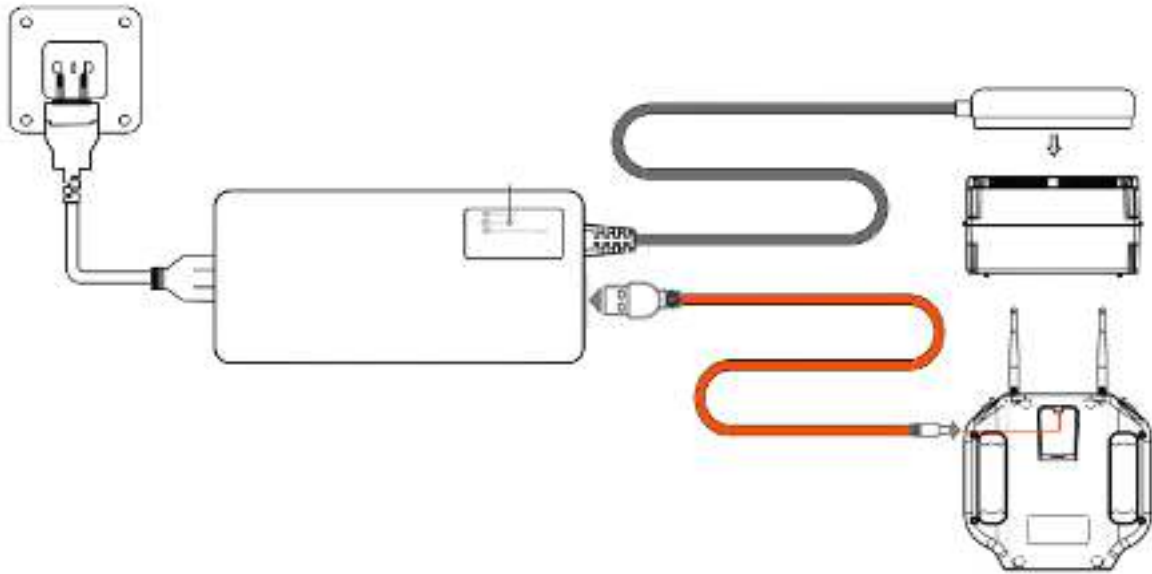
How to charge:

Refer to the above figures to connect the intelligent battery and charger. Press the power button to turn on the intelligent battery, and the battery will automatically enter the charging state. When the battery is fully charged, the intelligent battery will shut down automatically.

Never charge the intelligent battery immediately after flight or when hot. Wait for the battery to cool and then start charging. The ideal battery charging temperature is between 23°- 28°C (73-82°F)

Charging the Remote control

The remote control can be charged from the supplied charger or from a standard USB socket.

The charging indicator on the charger will change from RED to GREEN when the remote control is fully charged.

The USB socket on the supplied AC charger can also be used to power or charge other USB devices such as mobile phones and tablets.

Installing the Drone Battery

The Intelligent battery is quick and easy to change. Ensure the battery is OFF before inserting or removing it from the drone.

Unlock the waterproof hatch door and open the catch.
Open the battery hatch door.

Slide in the fully charged intelligent battery and fold the battery handle flat.

Close the battery hatch. Fasten the catch and then lock the hatch.

Always check to ensure that the waterproof seal on the hatch door is clean and lightly lubricated.

The drone is no longer waterproof when the battery hatch is open. Do not allow water or sand to enter the drone while the battery hatch is open.

The **Appendix** of this manual contains additional warnings and precautions regarding the batteries, safety, charging and maintenance. Please ensure you familiarize yourself with all of this information to get the most from your purchase.

Flight Modes and Featured Functions

The SwellPro SD4 utilizes an all-new, high-performance flight computer. Flying with just the remote control (without using the NaviFly app) the drone natively supports seven different flight modes . The NaviFly app adds further functionality and allows the pilot to choose the custom mode accessible from the remote control's Flight Modes switch.

The Native Flight Modes are: GPS mode; ATTI mode; Curise Mode; Circle Mode; Headless+ Mode; Manual+ Mode and Sport Mode. Default Flight Modes are: GPS mode; ATTI mode and Sport Mode

The Featured Functions are: Boat Mode; Intelligent Follow; Smooth+ Controls; Return Home (RTH)

GPS Mode

In this native mode the multi-mode GPS module, barometer, gyroscope and accelerometers work together to realize intelligent flight functions such as accurate height setting, fixed-point hovering, intelligent flight and intelligent return. In this mode the maximum flight speed is 10m/s, the maximum ascent speed is 4m/s, and the maximum descent speed is 4m/s.

ATTI Mode

In this mode, the flight computer maintains aircraft altitude and attitude but does not stabilize position. This mode is particularly useful when landing the drone on a moving boat. The maximum flight speed in this mode is 22m/s. With good GPS coverage, automated return home functionality is maintained. As braking is not automatic in ATTI mode, ensure you leave at least 30 meters of braking distance from obstacles.

Since SD4 is a multifunctional flight platform. In the case of heavy load flight, we specially design a low-speed ATTI mode to ensure flight safety. **And low speed ATTI is the default setting. Short press [12] Right Payload Release Switch 4TIMES to quit. Short press [12] 4times again to enter**. The remote control will vibrate, a line will be added to the mode icon on the osd screen.

Cruise Mode

In this mode, the aircraft will enter and fly forward at a minimum speed of 1 m / s. The pitching rod is pushed forward and the aircraft accelerates; The pitching rod is pulled back and the aircraft decelerates. When the expected flight speed is reached, release the joystick, and the aircraft will keep the current speed. The forward direction of the aircraft is controlled by the yaw rod, and the flight height can be controlled by the throttle rod at any time.

Circle Mode (Orbit)

This mode is mainly used to surround the target object, and the maximum surrounding radius is 150 meters. When the aircraft moves above the target and turns on the orbit, it will take the target as the center, retreat 10 meters and adjust the nose direction. At this time, the pitching rod is pulled down to expand the surrounding radius, and the pitching rod is pushed up to reduce the surrounding radius (at least 10 meters); The roll rod controls the speed and direction of the circle (better with smooth + knob). Example: when the aircraft is circling clockwise, push the roll rod to the right to increase the speed of the circle, and push the roll rod to the left to reduce the speed of the circle until it is circling counterclockwise. The throttle rod can adjust the flight altitude, and the yaw rod does not work. When performing the surround mode, the aircraft and gimbal camera will automatically adjust and aim at the surround target. During the surround process, you can adjust the gimbal camera angle.

Headless+ Mode

This mode is mainly used to simply let the aircraft return when it flies beyond the line of sight and can't distinguish the aircraft position and nose direction; Working mode: the yaw lever does not work, the throttle lever works normally, the pitching lever is pushed forward, the aircraft flies straight ahead, the pitching lever is pulled backward, the aircraft flies straight to the direction of the remote control, or even over the position of the remote control; In this mode, by simply controlling the roll bar, the aircraft will fly around with the remote control as the center. This mode, combined with the smooth + knob, can easily achieve variable speed / uniform circle flight shooting at any radius and angle.

Manual+ Mode

In this mode, the aircraft does not have the function of fixed point and fixed height, and only maintains the attitude stabilization. When flying in attitude mode, the aircraft will maintain its attitude automatically. The adjustment of aircraft height, speed and position needs to be controlled manually and timely. Compared with atti mode, manual + mode lacks height setting function. It is used in some ultra low altitude flight, and this mode has no limit on the speed of ascend and descend, and may be used in some scenarios （This mode is semi professional, and the pilot should choose this mode carefully.

Sport Mode

On the basis of GPS mode, we have developed a new flight mode, namely "Sport Mode". In this mode, the control is very sensitive and the speed is very fast. When the joystick is released, the drone can hold fast. In this mode, it is very suitable for tracking and shooting moving objects.

BOAT (Surface Navigation) Mode

In Boat mode, the SD4 can effectively be controlled like a boat on the surface of the water. With a maximum surface speed of 1m/s. Control instruction: In GPS mode, after the aircraft lands to the water, wait for the aircraft to enter idle (locked standby) state, and press the boat mode key to enter. After entering the Boat mode, the Throttle rod does not work, the Yaw bar controls left / right turn, the Pitch rod pushes forward to accelerate, and the Roll rod does not work. Press the Boat mode button again to exit, and the aircraft can take off normally.

In Boat mode, NaviFly app intelligent navigation mode can be used normally, such as fixed point hover, pointing navigation, route planning, grid search, intelligent surround, etc.

Boat mode application: combined with each camera and extension bar, underwater photography and underwater search; combined with the Gimbal Up-hang kit and the GC3-S gimbal camera for surface to air photography; Large scale fish swarm search with fish finder (Dronar 01)

Note: When operating in Boat mode, take care that the landing gear and other attached accessories do not get caught on weed or other debris that could prevent the drone from flying.

Intelligent Follow

The SwellPro SD4 uses an innovative relative position follow. With good GPS signal for the drone and the remote control, when Follow Me is activated, the drone will maintain its position relative to the remote control and can lead, follow or parallel chase the position of the remote control, adjusting the position of the camera gimbal and drone to keep the camera pointed at the remote control (pilot).

While the drone is in Follow Me mode, you can adjust the aircraft direction, following distance, camera angle.

Start Follow Me: Check that the remote control has GPS lock by checking the GPS status indicator on the screen. Press and hold the Follow Me button. The remote control will beep and vibrate twice.
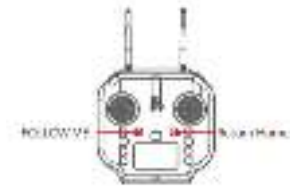
Stop Follow Me: Short press the "FOLLOW ME" button, the remote control will beep and vibrate twice and the drone will initiate the return home process.

The remote control will beep and vibrate once to indicate that Follow Me has been cancelled.

Smooth+ Controls
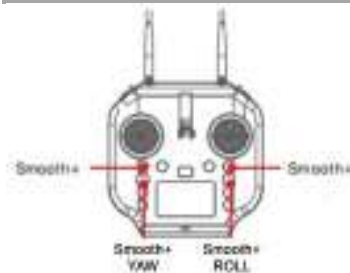
The patented "Smooth+" flight dials allow the pilot to switch from joystick control of roll and yaw to a dial to finely adjust and maintain a desired drone attitude. Whether filming or surveying, with Smooth+ you can "dial-in" just the right amount of aircraft movement to achieve and maintain smooth pans, orbits and sweeps - hands-free!

Once Smooth+ is started, the selected function is switched from the joystick to the control knob. To return the function to the joystick, disable Smooth+.

Smooth+ YAW: Check that the Smooth+ YAW control knob is in the center. Press the left-hand Smooth+ button. The remote control will beep and aircraft rotation (YAW) control will move to the left-hand Smooth+ knob. YAW will now be disabled on the joystick. Press the Smooth+ button again to return YAW control to the joystick. This function is very useful for accurate manual orbit flights.

Smooth+ ROLL: Check that the Smooth+ ROLL control knob is in the center. Press the right-hand Smooth+ button. The remote control will beep and aircraft sideways control (ROLL) will move to the right-hand Smooth+ knob. ROLL will now be disabled on the joystick. Press the Smooth+ button again to return ROLL control to the joystick. This function is useful when manually tracking an object or for dolly pan maneuvers.

Return Home (RTH)

Long press the Return Home button, the remote control will give out two vibrations and beeps to indicate that the drone will commence the return home process.

The SD4 constantly records the GPS position of the pilot, allowing the aircraft to always return to the pilot even if they have moved from the original take-off point. This dynamic home-point location is used if the aircraft needs to return home due to a loss of control signal error or if the pilot initiates a return to home command.

If no pilot GPS position is established by the remote control, the drone will return to the take-off point. Once a pilot GPS location is received from the remote control, the drone constantly updates its home position. Should the signal to the remote control fail, the drone will return to the last known location of the pilot.

By default, the SD4 constantly records the GPS position of the pilot, allowing the aircraft to always return to the pilot even if they have moved from the original take-off point. This dynamic home-point location is used if the aircraft needs to return home due to a loss of control signal error or if the pilot initiates a return to home command.

If no pilot GPS position is established, the drone will return to the take-off point. Once a pilot GPS location is received from the remote control, the drone constantly updates its home position. Should the signal to the remote control fail, the drone will return to the last known location of the pilot.

After the return function is activated either manually or automatically, the aircraft will fly to the current home point and land. If the home position is obtained from the remote control, the aircraft will land 3 meters in front of the recorded position.

Return Home Process

If the drone's height > 20m* and the distance from Home Point > 15m, the drone will maintain its altitude and return to its Home Point before landing.
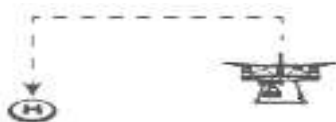
If the drone's height < 20m* and distance from Home Point > 15m, the drone will climb to 20m* and then return to its Home Point before landing.

Note : If the GPS signal is poor or GPS doesn't work, the Return Home function will not be available.

* The RTH Return Home height can be set in the NaviFly app.

During the return home process, the left and right joysticks of the remote control can be operated to facilitate the avoidance of obstacles or change the landing point. When you stop operating the joystick, the aircraft will continue to return home. During the return home process, the Flight Mode switch is disabled, but the control of accessories such as payload release modules works normally.

Remote Control Introduction

SD4 remote control has been carefully designed to provide worry-free operation in harsh environments whilst remaining easy to use. Its IP66 rating ensures that it is protected from strong jets of water as well as sand and debris so it can be confidently used in any weather conditions.

The remote control battery provides up to 8 hours of battery life or 12 flights per charge.

The integrated high-brightness 2-inch digital display provides critical aircraft telemetry and flight data giving the pilot real-time aircraft status even when flying without a tablet or phone attached.

To ensure waterproofing of the remote control and connected devices, the SD4 remote control provides for high-speed Wi-Fi connections rather than cables. A pioneering design allows multiple devices to be connected simultaneously, allowing different apps and devices to be used at the same time during flight.

The remote control's built-in GPS module allows the SD4 to include the pilot's precise location in its flight calculations, enabling real-time tracking and dynamic return-home functions, such as returning to a moving boat.

The "Smooth+" flight dials allow the pilot to switch from joystick control of roll and yaw to a dial to finely adjust and maintain a desired drone attitude. Whether filming or surveying, with Smooth+ the pilot can "dial-in" just the right amount of aircraft movement to achieve and maintain smooth pans, orbits and sweeps - hands-free!

Note: *Install the Remote control antennas BEFORE turning the power on. Failure to install the antennas before powering on the remote control may cause permanent damage to the remote control.*

Power ON and Power OFF
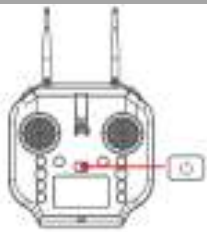
1. Press and hold the Power switch for 3 seconds.
2. The Remote control will power ON
3. To turn OFF the Remote control, return the Camera Control switch to the Preview position to stop any recording
4. Press and hold the Power switch for 3 seconds.
5. The Remote control will power OFF

Flight Mode Selection
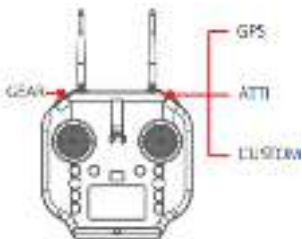
GPS : Sets the drone to GPS flight mode

ATTI : Sets the drone to ATTI flight mode

CUSTOM : Sets the drone to the user-selected flight mode. This can be changed in the NaviFly app. The default flight mode is Orbit (Circle) mode.

GEAR : Not currently supported.

Joystick Controls

LEFT JOYSTICK includes Throttle & Yaw; RIGHT JOYSTICK includes Pitch & Roll. YAW controls the nose direction; THROTTLE control the drone to ascend or descend; PITCH control the drone to fly forward or backward; ROLL controls the drone to fly left or right.
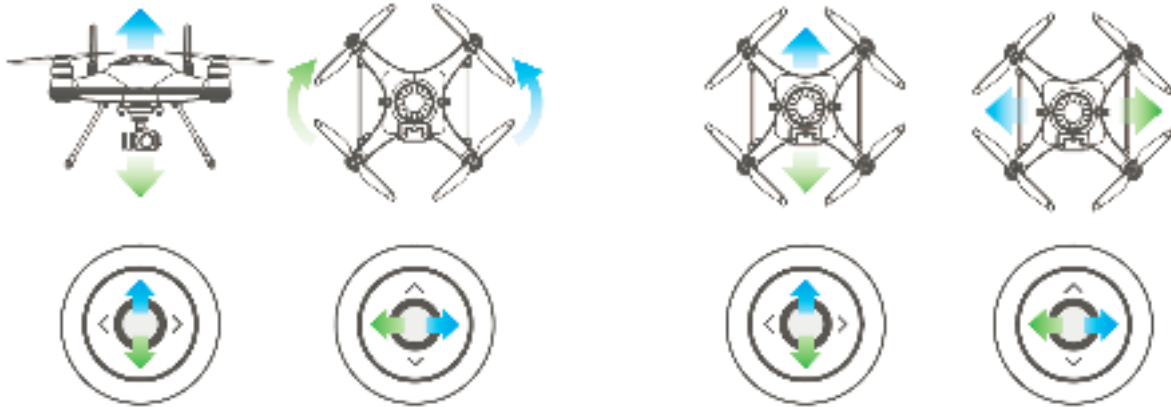
LEFT JOYSTICK		RIGHT JOYSTICK	
Throttle	Yaw	Pitch	Roll

Camera Control
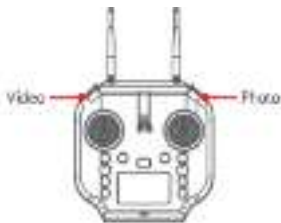
Video: Press the video button once to start video recording. Press again to stop video recording and save the video file.

It is important to stop video recording before powering down the drone.

Photo: To start photo capture in the current photo mode, briefly press the Photo button. The display will blink for each image captured.

Gimbal Control
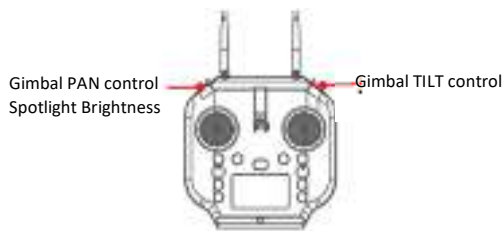
PAN control wheel: Adjusts the horizontal position of the gimbal or the spotlight brightness, depending on the accessories fitted to the drone.

TILT Control Wheel: Controls the pitch or tilt of the attached gimbal.

Intelligent Follow

Start Follow Me: Check that the remote control has GPS lock by checking the GPS status indicator on the screen. Press and hold the Follow Me button. The remote control will beep and vibrate twice.

Stop Follow Me: Short press the "FOLLOW ME" button, the remote control will beep and vibrate twice and the drone will initiate the return home process.

The remote control will beep and vibrate once to indicate that Follow Me has been cancelled.

Return Home (RTH)

Long press the Return Home button, the remote control will give out two vibrations and beeps to indicate that the drone will commence the return home process.

Smooth+ Controls
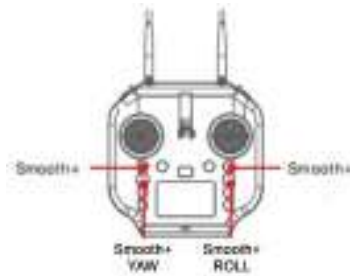
The patented "Smooth+" flight dials allow the pilot to switch from joystick control of roll and yaw to a dial to finely adjust and maintain a desired drone attitude. Whether filming or surveying, with Smooth+ you can "dial-in" just the right amount of aircraft movement to achieve and maintain smooth pans, orbits and sweeps - hands-free!

Once Smooth+ is started, the selected function is switched from the joystick to the control knob. To return the function to the joystick, disable Smooth+.

BOAT Mode

In Boat mode, the SD4 can effectively be controlled like a boat on the surface of the water. With a maximum surface speed of 1m/s.

Changing Gimbal Mode

Normally, gimbal cameras dynamically adjust the camera angle so that the recorded image remains flat regardless of the orientation of the drone. On supported gimbal cameras, the gimbal can be locked in position so that the camera is locked to the drone position. Press and hold the Gimbal Mode button to lock the gimbal. Short press the Gimbal Mode button to return to normal balanced gimbal mode.

Payload Release (PL1-S) Switch

The SD4 remote control can accommodate two separate payload release mechanisms. To open a payload release, short press the selected Payload button. To close the payload release, short press the Payload button again.

The SD4 payload release (PL1-S) is equipped with an extension arm, which can be installed according to different gimbal cameras. When used with gc3-s and gc2-s, PL1-S needs to install extension arm When used with GC1 and FAC, it is better to remove the extension arm.

Low Battery Alarm Warnings

The SD4 has three battery alarm levels to help the pilot manage the drone's battery life. Each time a battery level alarm is activated, the remote control will beep and vibrate to alert the pilot.

Level 1 alarm: The drone battery level has reached 13.0V. The remote control screen will display a large battery icon in the middle of the screen to prompt you to return the drone if it is not nearby and prepare to land. The Drone Status Indicators on the rear arms will flash a pattern of 3 yellow lights.

Level 2 alarm: The drone battery level has reached 12.0V. The battery icon on the FPV screen will flash. The battery level is now below 20% and you should plan to land the drone safely.

Level 3 alarm: The drone battery level has reached 12.0V. After 10 seconds, the drone will initiate an in-place Auto Landing to protect the drone and battery. The LED on the read arms will flash yellow constantly. The FPV will display "FS" in the lower-left corner to indicate that flight-safety mode is active.

Should it be necessary to prevent the Auto-Landing, switch the drone into ATTI mode to regain manual control and land the drone. If the pilot continues to fly the drone below 14.2v there is a risk that the battery will not be able to maintain flight and the drone will crash.

Note: During flight it is important to constantly monitor the battery voltage as flying conditions like strong wind and fast movements can deplete the battery more rapidly.

It is dangerous to continue flying the drone with insufficient battery power.

This could result in damage to the battery and risk of the drone crashing.

NaviFly APP

The NaviFly APP is specially designed for Swellpro's next generation products. The app supports real-time high-definition digital video from the drone, camera control and settings, drone flight parameter tuning and various intelligent flight modes. The iOS version of the APP supports both iPhones and iPads.

The APP does not require user registration or an internet connection and can be used without uploading or sharing any personal information or data.

APP installation

For Apple devices, the iOS version is available from the AppStore. The Android version is available from the Google Play store or directly from swellpro.com

Connecting the NaviFly APP to the Remote control

After successfully installing the app, turn on the Remote Control and then the drone. Connect your device to the Wi-Fi hotspot named IN_Bxxxxx. The initial password is 12345678.

After joining the Wi-Fi hotspot generated by the Remote Control, open the NaviFly APP. Main APP Interface

[1] The main interface

[2] Share picture/videos

[3] Information

[4] Enter into the operation interface

Camera Interface
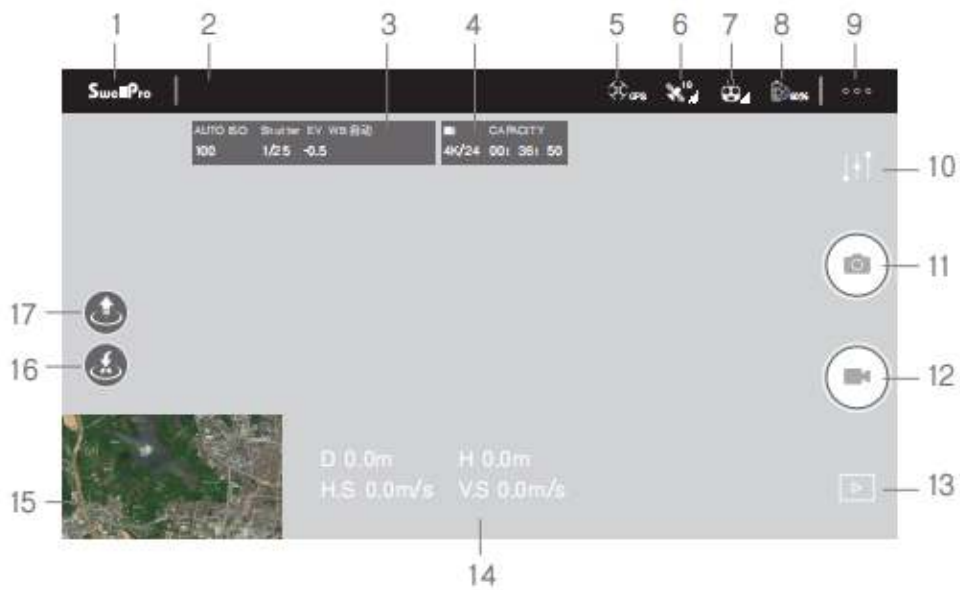
1. **Home Screen:** Return to the main interface.

2. **Flight Status:** Displays the flight status of the aircraft and warning information.

3. **Camera Parameters:** Current camera/video parameters

4. **Memory card Information:** Remaining recordable capacity.

5. **Flight Mode:** The current flight mode.

6. **GPS Signal Quality:** Number of tracked satellites

7. **Remote control Signal Quality:** The quality of the control and image signal between the remote control and the aircraft

8. **Aircraft Battery Power:** Real-time display of the current remaining power of the intelligent flight battery

9. **More Settings:** Tap to open the General Settings menu

10. **Camera parameter settings:** Set video and photo parameters

11. **Take a photo:** Take a photo

12. **Video:** Start/stop video recording

13. **Playback:** View photos and videos that have been taken

14. **Flight Parameters:** D: Distance between the aircraft and the home point | H: Aircraft height from Home Point | H.S: Aircraft horizontal speed over the ground | V.S: Aircraft vertical speed

15. **Thumbnail map:** Tap to quickly switch to the map interface.

16. **One-Key return:** Tap to start automatically return to home (RTH) and land 3 meters in front of Remote control current position and turn off the motors

17. **One-Key take-off:** Tap to automatically take off and hover at a height of 3 meters.
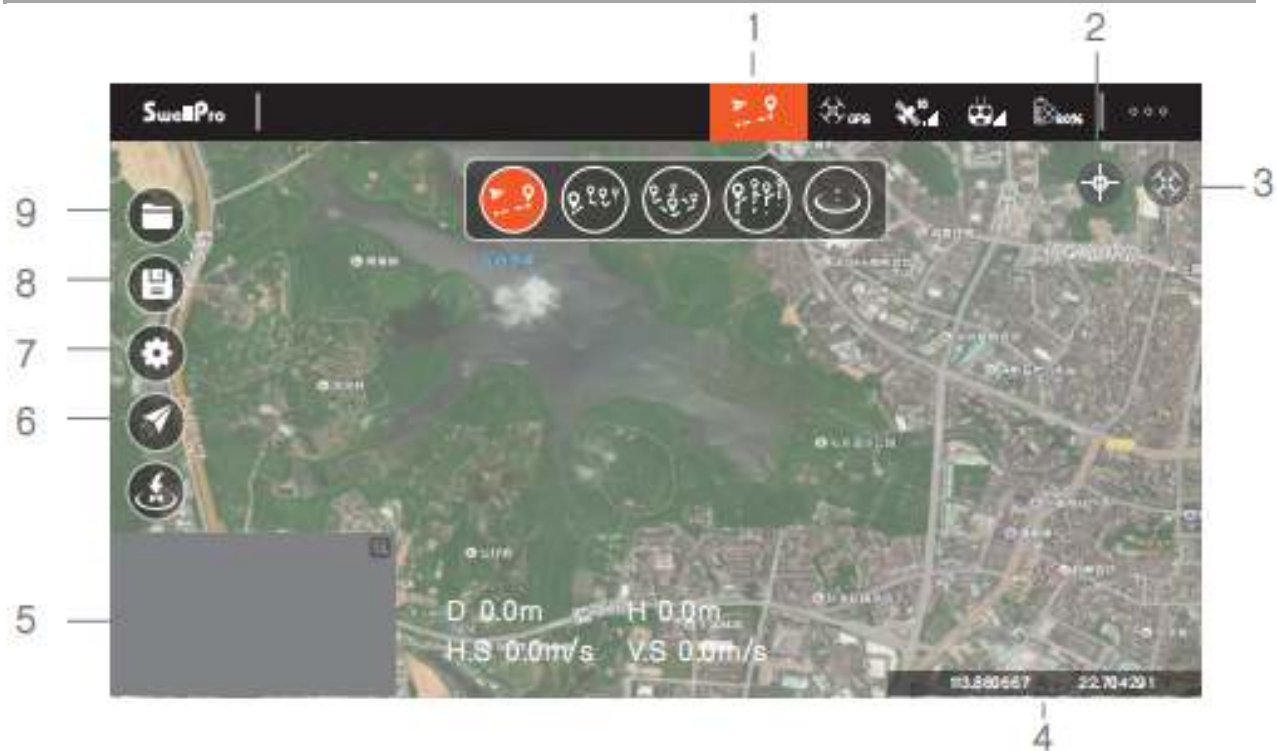
Intelligent Flight Modes [1]

Point Flight

In GPS mode, click where you want to fly to on the map and the SD4 will automatically navigate to the destination and hover. You can also manually enter longitude and latitude information as well as set altitude and speed. During aerial photography or missions, the aircraft can autonomously fly to selected places, freeing the pilot from flight control.

Route planning

For more complex autonomous flight plans, use Route planning to direct the SD4 to fly a route through a series of waypoints. For each waypoint, height, waiting time and heading can be chosen.

Grid Flight Planning

In GPS mode, choose between 3 and 256 waypoints to define a flight boundary. The SD4 will create a grid flight pattern to uniformly fly over all of the area within the grid. Choose height, grid parameters, gimbal and camera settings for the chosen mission. Grid Flight are effective for search and rescue, survey and inspection missions.

Inspection Point Flights

In this mode, the mission can be planned to include specific actions at each waypoint such as descending to take a water sample, take a series of photos or perform some other task before progressing to the next waypoint.

 Intelligent Circle

In GPS mode, tap the orbit button, select the orbit center point and then set the orbit radius, number of laps, speed, height and direction of rotation. The gimbal and camera will automatically adjust to the center point of the orbit. During the orbit, the angle of the gimbal camera can be adjusted.

 Remote control position [2]

Tap to quickly identify the location of the remote control (home point) on the map.

 Drone position [3]

Tap to quickly locate the position of the drone on the map.

[4] Drone coordinates
Real-time display of Drone latitude and longitude coordinates

[5] Thumbnail Screen
Tap to switch between camera and map view.

 Execute Intelligent Flight [6]
Tap to execute the chosen Intelligent Flight

 Waypoint settings [7]
Set waypoint values

 Saved Routes [8]

Name and save frequently used Routes to allow for consistent replay of tasks.

 Historical Routes [9]

Tap to open the saved historical routes

Flight

The drone relies on very sensitive sensors to control flight positioning and stability. The SplashDrone 4 is flight tested before shipment; however an initial calibration of the compass sensor is required when the drone is new or in some other circumstances.

Before operating the drone from a ship or other moving platform, ensure all necessary calibrations have been completed before leaving land as some calibrations require a completely stable surface.

Compass Calibration

Compass calibration is necessary in any of the following situations:

a.	The drone is brand new
b.	The remote control prompts "WARNING Compass error - Calibrate Compass
c.	The drone is more than 100km from the location of its last flight
d.	The drone has been repaired
e.	The YAW (Y) indication on the Remote control screen does not show the correct compass reading (North = 0°, South = 180°) ±10°
f.	The drone has subjected to strong magnetic interference
g.	The drone has been crashed or dropped accidentally
h.	The drone sways or drifts excessively during hover in GPS mode

Compass Calibration Process:

1.	Place the drone on a horizontal surface. Power on the remote control then the drone.

2.	Quickly switch the flight mode lever backwards and forwards between the three positions several times. When the green light on the rear arm flashes quickly, or the remote control displays the screen prompting "Compass Calibration Rotate The Aircraft Horizontally", the system has entered the calibration state.

3.	Pick up the aircraft and keep it horizontal. Rotate it clockwise 2 - 3 times until the green light on the rear arm flashes slowly, or the remote control screen prompts "Compass Calibration Rotate The Aircraft Vertically"

4.	Hold the drone vertically with its nose pointing downwards and rotate it 360 degrees until the screen displays "WARNING Aircraft Initializing, Please Wait" indicating the calibration is finished.

5.	Place the drone on a horizontal surface for 30 seconds to finish the initialization.

6.	Once the warning message on the screen disappears, restart the drone.

Note: 1) Compass calibration needs to be performed outdoors in an open area. 2) Remove propellers and any camera accessories before calibration. 3) Perform the calibration process away for sources of magnetic fields, large metal structures, radio antennas, power poles or mobile phones, etc

IMU Calibration

The Intertia Management Unit (IMU) provides the raw data of the aircraft's attitude in space in nine dimensions.

The IMU accelerometer sensor is critical to balance the aircraft in flight.

To determine if the IMU is properly calibrated, with the drone stationary on a completely flat and level surface check the (P) Pitch and (R) Roll values on the remote control. These values should be between -1 and 1 (zero) and remain stable. Additionally, if the drone's response feels skewed, the IMU may need recalibration

IMU calibration is necessary if:

1. The aircraft cannot start the motors after completing the compass calibration.

2. When hovering in GPS mode, the aircraft hover is unstable or drifts constantly.

3. The aircraft has crashed, been hit or violently shaken.

4. The remote-control display prompts "WARNING IMU error-Calibrate IMU".

Note: Never calibrate the IMU on a boat or moving platform

When the drone is floating amongst waves, it may occasionally display an IMU calibration, which is normal and can be ignored.

IMU Calibration Process

1. Place the drone on a horizontal surface. Power on the remote control then the drone. Wait for initialization to complete.

2. Push the left joystick up to the highest position and then fast flick the right joystick left and right continuously until "WARNING Aircraft Initializing, Please Wait" appears on the FPV screen

3. Do not move the aircraft. Within 20 seconds, the front and rear arm lights will stop flashing alternately, the front arm red light will flash quickly, and the rear arm green lights will glow. The "WARNING Aircraft Initializing, Please Wait" prompt disappears on the remote-control display screen, indicating that the calibration is successful.

4. Please restart the aircraft.

Note: If the warning message "WARNING Aircraft Initializing, Please Wait" remains on the screen, the calibration has failed and needs to be repeated.

Gyroscope (Accelerometer) Calibration

The gyroscope provides stability data to the flight computer. If the gyroscope is not well calibrated, the aircraft will tilt to one side when it takes off, and the angle will become increase until the aircraft can no longer fly.

If the system detects an abnormal gyroscope, it will display a Gyroscope warning message.

When the drone is floating amongst waves, it may occasionally display a Gyroscope message due to the movement of the waves, which is normal and can be ignored.

Gyroscope calibration is necessary if:

1. If the remote-control prompts "WARNING Gyroscope error Calibrate Gyroscope".
2. When in GPS flight mode and using only the THROTTLE joystick, the drone drifts at an angle.
3. When in ATTI flight mode and using only the THROTTLE joystick, the drone body tilts.
4. The drone has been subjected to heavy shaking during transportation.

Gyroscope Calibration Process:

1. Place the drone on a horizontal surface. Power on the remote control then the drone.

2. The drone must remain perfectly still and free of all vibrations or movement.

3. Pull the left throttle stick vertically to the lowest position and at the same time quickly move the right stick left and right, until the front and rear arm lights flash alternately or the remote-control display screen prompts "WARNING Aircraft Initializing, Please Wait" to indicate that it has entered calibration

4. Do not move or control the aircraft during this process. Within 20 seconds, the front and rear arm lights retreat Flashes alternately, the red light on the front arm is flashing quickly, and the green light on the rear arm is steady on, or the remote-control display. The "WARNING Aircraft Initializing, Please Wait" prompt disappears on the screen, indicating that the calibration was successful. Restart the aircraft.

Note: If the warning message "WARNING Aircraft Initializing, Please Wait" remains on the screen, the calibration has failed and needs to be repeated.

Aircraft Antenna

The radio antennas of the drone can be oriented either upwards or downwards to maximize reception in different situations. The SD4 has an effective range of over 5km while airborne. Due to the way radio waves travel, when flying just 0.5m above the water, range is still up to 2.8km and floating on the water surface the transmission range is 500m.

Generally, upward pointing antennas improve reception when the drone is floating or operating close to the water surface. Orienting the antennas downwards maximizes range for higher altitude flights. Adjust the antennas individually or together to maximize range for your planned flight.

Antenna oriented upward: Improves reception when the drone is floating on the surface of the water (boat mode) or for low altitude flight.

Antenna oriented downwards: Improves reception when the drone is flying further or at higher altitudes.

To adjust the antenna position, loosen the holding nut at the base of the antenna, adjust the antenna position and retighten the nut.

Precautions before flight

1. If this is your first time flying a drone, please read this manual thoroughly and watch the instructional videos on our YouTube, Wechat channels and on our official website swellpro.com.
2. We recommend taking professional training and guidance. When flying, select an environment appropriate to your skills. Check all calibrations and choose a large open area to practice.
3. It is advisable for all drone pilots to become familiar with flying in ATTI mode in case of GPS or magnetic interference, which can interfere with drone controls.
4. Although the SD4 is waterproof, do not fly in fog or if the wind is very strong or gusting above Beufort Force 8.
5. Select an open place or water surface as an ideal flying site.
6. Flying between or near large steel buildings could adversely affect the workings of the compass and can adversely affect or block GPS and control signals.
7. During flight, try to maintain line of sight with the drone, keep away from obstacles and people.
8. Avoid flying near areas of high electromagnetic interference such as power lines or communication towers to minimize the risk of interfere with the remote control of the drone.
9. Fly below 4000 meters above sea level as environmental factors including air density and wind shear reduce the performance of aircraft and therefore also propulsion batteries.
10. Before flying in low temperatures, warm the battery to ~25c to maximize flight time.

Flight Restrictions – No Fly Zones

According to provisions of the International Civil Aviation Organization and many national air traffic regulations, drones must be operated in specified airspaces. By default the SD4 is configured to not exceed an altitude of 120m the Home Point altitude.

If you need to cancel the safety fence, please set the flight altitude to 0 through app.

Maximum flight altitude: 120 meters

Home Point
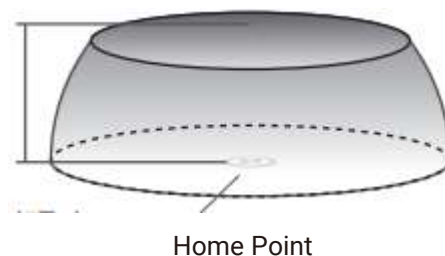
Setting No Fly Zones

No fly zone can be set by choosing a central point and radius in the app. After setting, the drone will not take-off or fly in this area.
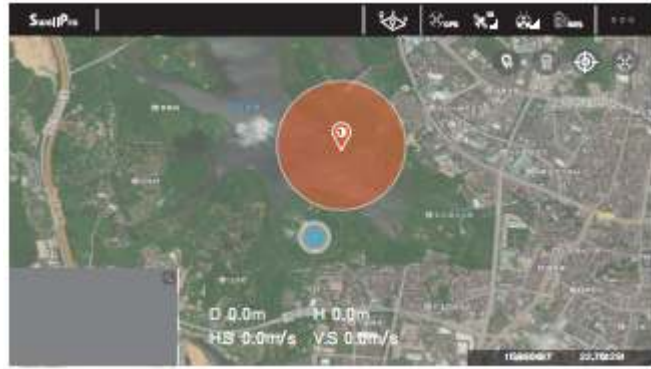
Night Lights

The top of the fuselage is equipped with high-intensity strobe light, which helps identify the drone's position to the pilot and other air traffic. This meets the requirements of night flight regulations in some countries and helps ensure flight safety at night. The strobe can be activated and deactivated in the app (STB).

Installing the Camera
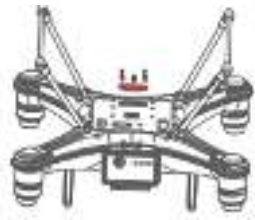
1. Unsrew and remove the waterproof cover plate for the Gimbal Camera, located on the underside of the drone body.
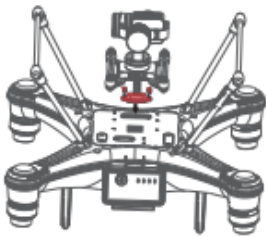
2. Carefully insert the camera's connector plug into the drone's interface then secure with a screwdriver. Screws should be firmly tightened but care must be taken to not exert too much force.

-
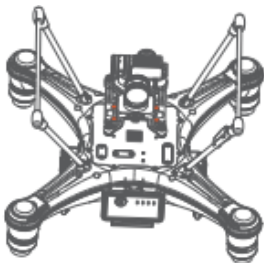
3. Align the gimbal with the mounting points on the bottom of the drone and screw the camera onto the drone to complete the installation.

Note: ENSURE that the orange o-ring is correctly positioned on the camera plug and that it is clean and lightly lubricated with silicone lubricant before installation. Sealing surfaces must be clean and free of all dust or other contaminants.

<u>Other accessories can be replaced or installed in the same way.</u>

Installing a mobile phone or tablet

Release the lock behind the mobile device mount, then slide open the mount to accommodate your device, lock the mount to complete the installation.

Starting and Stopping Motors (Arming the Drone)
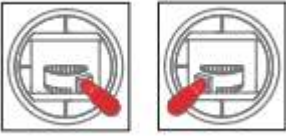
Before starting the drone, take the following precautions:

1. Place the aircraft in an open area 3 meters away from yourself or others.
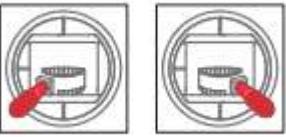
After the aircraft is powered on, the system will conduct a self-test. After the self-test is completed, it will sound a confirmation tone.

2. In GPS mode, if the satellite signal of the aircraft is poor, the remote control will vibrate when unlocking, and the display will prompt "GPS signal is poor, unable to unlock". The motors will not unlock.

3. Unlocking in ATTI mode is not affected by GPS signal strength. However, it is not recommended for novice pilots to fly without GPS coverage.

4. In CUSTOM mode, the motors cannot be unlocked.

Starting (Arming) Motors

Remote control operation	Describe
	Pull both the left and right joysticks simultaneously down and inwards and maintain this position for 3 seconds. The motors will now be unlocked and will start rotating.

Locking Motors (Emergency Stop)

Remote control operation	Description
	Method 1: After the aircraft has landed on the ground or water surface, pull the throttle to the lowest position and hold for 3 seconds. The motor will lock automatically. (Recommended)
	Method 2: Pull both the left and the right joysticks downwards and outwards. This method can be used to as an emergency stop Stopping the motors in flight may cause the drone to crash and should only be carried out in emergencies (for example: there is a risk that the drone may hit people or crowds) if stopping the motors will minimize any potential damage.

Basic Flight Steps

1. Check that the aircraft is correctly assembled.
2. The propellers are correctly mounted and secure.
3. The battery cover is closed and locked.
4. The silicone plug on the back of the remote control is closed.
5. The mobile device is securely mounted to the remote control.
6. Place the aircraft on flat open ground or water.
7. Power on the remote control, followed by the drone.
8. Connect the mobile phone to the remote control Wi-Fi
a. Open the APP and wait for the camera image to appear and flight data display is normal.
9. Check the following flight data: Battery capacity > 16.0V; Remote control battery power > 1 bar; Satellite > 5.
10. For safety, you should stand upwind and to the side of the drone at least 3 meters from the drone.
11. Novice pilots should always take-off in GPS mode.
12. Arm the drone or alternatively, use the automatic take-off mode of the APP.
13. Push the THROTTLE joystick up slowly, allowing the drone to take off smoothly. Release the throttle when the drone is approximately 1.5m high. Allow the drone to hover for a moment to ensure flight stability.
14. When you need to descend, slowly pull down the throttle joystick, allowing the drone to descend and land on a flat surface or on the water.
15. After safely landing, keep the throttle down in its lowest position for 3 seconds until the motors have stopped or use the disarm joystick command.
16. Stop video recording before shutting down the drone, otherwise the video file may be corrupted.

Water Take-offs and Landings

1. When taking off from choppy water, ascend quickly from the surface to prevent the drone being affected by a passing wave.
2. When landing on water, descend vertically to the surface. If the drone lands with horizontal speed, it is possible the drone can flip and be inverted. The flight controller will shut down the motors if the drone becomes inverted.

⚠ Do not leave the drone floating inverted for more than a few minutes. Flip the drone using the Power-Flip command or recover the drone as soon as possible to avoid water saturating the waterproofing membrane.

If the hidden waterproof membrane in the lid of the drone becomes saturated or blocked, the drone will not be able to accurately maintain altitude with a good GPS signal. The membrane is user replaceable. Simply, remove the protective cover on the very top of the drone to expose the membrane. Peel off the old membrane. Clean any residual adhesive and then carefully adhere a new membrane and replace the protective cover.

If the waterproof membrane is damaged and water enters the GPS module on the top of the drone, the whole GPS module must be replaced. Because the GPS module is independent of the main drone body water will not affect other electronic systems of the aircraft.

Take-offs and Landings from a Boat

When taking off from a boat there needs to be sufficient space, otherwise the drone should be placed on the water for take-off. Likewise, it is safer and easier to land the SD4 on the water beside the boat rather than landing on a rocking boat or where there is insufficient space for a safe landing.

If the boat is rocking, the SD4 may not arm its motors in GPS mode. In this case, carefully take-off in ATTI mode and then switch to GPS mode if there are sufficient satellites.

For safety, it is not recommended to launch or land your SD4 from your hands.

Be aware of the direction of the wind relative to the boat. Even when at anchor, it is possible that the wind will not be at the nose of the boat.

Always try and take off with the wind so that the drone will be taken safely away from the boat. When landing the drone onto a boat, if possible land against the wind so that the drone will be held away from the boat. The Smooth+ controls of the SD4 are useful to finely control and balance the drone position.

Water Power-Flip

If the drone becomes inverted on the surface of the water, using the Power-Flip feature, the drone can be flipped so that it is right-side up.
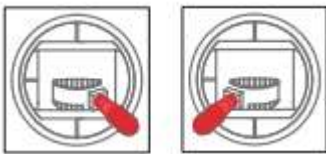
With the drone floating upside-down, pull both the left and right joysticks simultaneously down and inwards and maintain this position for 3 seconds. The drone will now be flipped.

Appendix

Remote control Rear Port
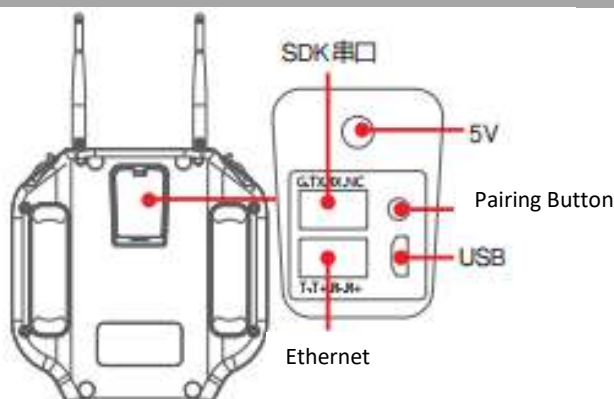
SDK Serial port: access to flight control data and transparent transmission

5V: remote control charging port

Pairing Switch: used for aircraft and remote control code matching

USB: Remote control firmware upgrade interface

Ethernet Network port: This supports the development of computer ground station software to control the aircraft and its airborne equipment and access flight telemetry.

Remote control Pairing

Both the aircraft and remote controller are powered on. After 1 minute, long press the pairing button of the aircraft and release it after 10 seconds. Double click the remote control paring button quickly (within 1 second). Wait for 2 minutes to see if the pairing is successful. More than 2 minutes can not connect, repeat the above operation.

Find the pairing buttons according to the following figure:
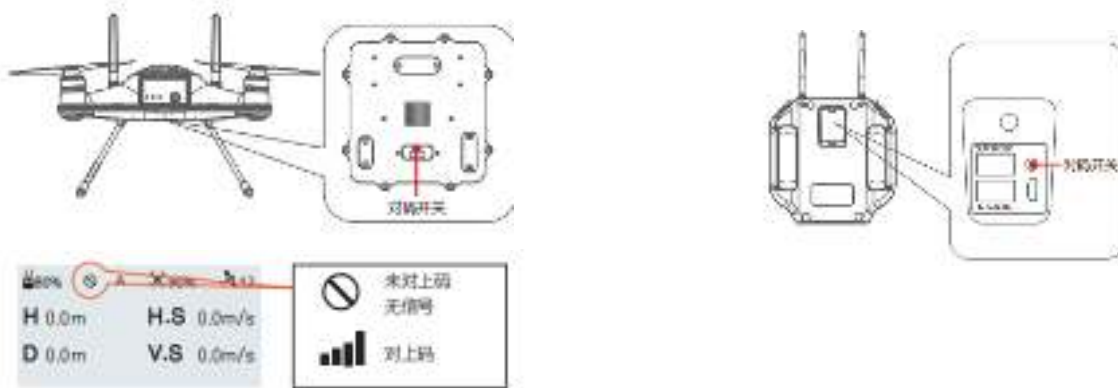
Unpaired

Setting the Wi-Fi Password
Paired

There are two ways to reset your Wi-Fi password:

1. Aircraft, remote control each press 5 times the code key, Wi-Fi password reset, this operation aircraft and remote control do not need to re-code;

2. Remote control continuously press the code key 5, Wi-Fi password reset, at this time the aircraft and remote control need to re-code. After resetting your password,

The Wi-Fi password is restored to the default, 12345678.

Joystick Calibration
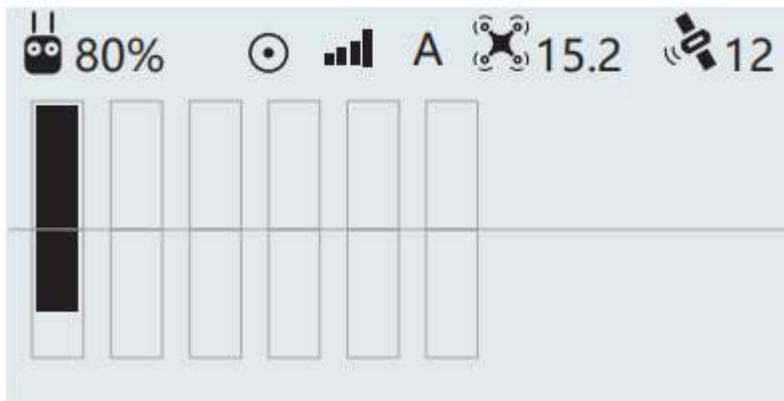
Calibration of the joysticks is necessary if the third page of the remote control screen indicates that the control inputs are not centred when the joysticks are in their neutral position.

To calibrate the joysticks, refer to the SwellproTools upgrade software instructions.

Note: It is necessary to calibrate the remote stick when changing the throttle mode.

Before calibration, make sure that all toggle switches are set to the top initial position.

Specifications

Aircraft	
Waterproof Level:	IP67（can floating on water）
Drone Weight（include battery and props）：	2.38kg
Size：	379.2*379.2*39.3mm(Propellers excluded)
Axis Diameter:	450mm
Max Ascend Speed:	4m/s
Max Descend Speed:	3m/s
Max Flight Speed:	18m/s（ATTI), 10m/s（GPS)
Maximum tilt Angle：	25°（ATTI)
Maximum angular velocity of rotation：	150°/s
Max Flight Altitude:	4000m
Maximum resistant wind speed:	72km/h; 45mph;
Max Flight Time (per charge):	30mins without any mount kits（mount GC3-S approx. 25mins, mount 1.5Kg approx.15mins）
Max Payload Capacity:	2.0Kg
Motor：	#2814 800KV
ESC：	40A
Propellers：	#1242 carbon fiber quick-fit propellers
Working Temperature：	-10℃～40℃
Satellite positioning module：	GPS/GLONASS
Hovering Precision:	±0.5m（vertical）±0.5m（level)
Transparent serial port：	Connect to a third-party device and transfer the data of the third-party device to the remote control
UART:	It provides an air interface from TTL serial port to TCP, which can connect different devices supporting 115200 baud rate
Wi-Fi Hotspot (IP: 192.168.1.101:2222)	The only Wi Fi hotspot matched with the aircraft is used to connect various mounted devices. After learning about the hotspot through the aircraft number or app, fix the IP and port, and then any data of Wi Fi connected devices in the air can be accessed and manipulated by the ground computer or other clients through TCP or UDP through the aircraft.
Power supply port	12V/2A	5V/2A

Remote control (MRC)	
Waterproof Level:	IP66
Frequency：	5.8GHz	2.4GHz
Real-time video transmission：	720P@30fps
time-lapse：	200 ms (It depends on the actual shooting environment and mobile devices)
Battery：	1S 7200mAh

Working current/voltage:	0.3A/7.4V
Micro USB port:	Firmware upgrade/fly log data read
SDK port	Read flight data and send standard command to flight control
Ethernet interface：	Connect computers and develop software applications. IP: 192.168.2.220:2222
Wi-Fi Hotspot	IP: 192.168.2.220: 2020
Phone mount kits：	Used to fix a phone or tablet
Screen：	2.68inch, 128x64
Working temperature：	-10℃-40℃

Intelligent Battery (IB1)	
Capacity：	6600mAh
Voltage：	14.8V
Type：	4S LiPo
Power：	97.68Wh
Battery weight：	730g (+/-5g)
Size：	153.6*82.4*48.3mm
Working temperatrure：	5℃-40℃
Maximum charging power：	84.5W

Charger	
Input voltage	100-240V
Output voltage：	16.8V & 5V
Rated power：	84.5W

Warranty Information

Please visit Swellpro website (www.swellpro.com) to find the "After-sales Service Policy" and submit a service request when needed.

Battery Care and Maintenance

- Do not allow the batteries to come into contact with any kind of liquid.
- Do not drop the battery into water.
- Do not leave batteries out in the rain, or near a source of moisture. If the inside of the battery comes into contact with water, chemical decomposition may occur, potentially resulting the battery catching on fire, and may even lead to an explosion.
- Never use non-Swellpro batteries. New batteries can be purchased by going to www.swellpro.com, or through your local Swellpro dealer. Swellpro takes no responsibility for any damage or injury caused by using non-SwellPro batteries.

- Never use or charge swollen, leaky or damaged batteries. If your batteries are abnormal, please contact Swellpro, or a Swellpro authorized dealer for further assistance.
- The battery can be used in the temperatures ranging from -10°C to 40°C. Use of the battery in environments above 50°C can lead to a fire or explosion. Use of the battery below -10°C can lead to permanent damage.
- Never disassemble, or penetrate the batteries with sharp tools, otherwise, this may result in the battery catching fire, or even lead to an explosion.
- Electrolytes in the battery are highly corrosive. If any electrolytes make contact with your skin or eyes, immediately wash the affected area with fresh running water for at least 15 minutes, and then see a doctor immediately.
- If the battery falls into water, pick it up immediately and put it in a safe and open area. Maintain a safe distance from the battery until it is completely dry. Never use the battery again, and dispose of the battery properly as described in the Battery Disposal section below.
- Do not heat batteries. A battery fire can be extinguished using sand, or a dry powder fire extinguisher.
- Do not put batteries in a microwave oven, or in a pressurized container.
- Do not put the loose battery cells onto any conductive surface, such as a metal table.
- Do not put any conductive cables or metal objects together with batteries, where they may short-circuit against each other.
- Do not drop or strike batteries.
- Do not place heavy objects on the batteries or the battery charger.
- Clean battery terminals with a clean, dry cloth. Failure to do so may result in poor electrical contact, which could reduce the battery capacity, or damage the charger.
- Do not continue to fly the drone after the low battery alarm has been activated; this will result in over-discharging the battery, and potentially could damage the battery cells.

Precautions for low temperature use:

1.   When the battery use in a low temperature environment (-10°C to 5°C), the battery capacity and flight time will be drastically reduced. It is recommended to take off when the battery is fully charged. Please fully charge and keep the battery warm before use.

2.   In a low temperature environment, it is recommended to preheat the battery to above 5°C before flying, and it is better to preheat to above 20°C

3.   Before flying in a cold environment, insert the battery into the aircraft to warm up for 1 to 2 minutes, and take off after the battery is fully warmed up.

Battery Charging

- Always use a Swellpro approved charger to charge the battery of the drone, and the radio controller. Swellpro takes no responsibility if the battery is charged using a non-Swellpro charger.
- In order to avoid any potential accidents happening, please do not leave the battery charging unattended.
- Do not charge the battery near flammable materials, or on flammable surfaces, such as carpet or wood.
- Do not charge battery immediately after flight, because the battery temperature may be too high.
- Disconnect the charger when not in use. Examine and maintain the charger regularly.
- Do not clean the charger with denatured alcohol or other flammable solvents.
- Never use a damaged charger.

Battery Storage and Transportation

- Keep batteries out of the reach of children and pets.
- Do not leave the battery near heat sources, such as a furnace, heater, or exposure to strong direct sunshine, for example: in cars
- The ideal storage temperature is 22°C ~ 28°C.
- Keep the battery in a dry and ventilated environment
- Never drop the battery into water, or store it in places where there is a possibility of water leakage.
- Do not drop, strike, impale, pierce, or manually short-circuit the battery.
- Keep the battery away from metal objects, such as watches, jewelry, and hairpins.
- Never transport a damaged battery, or a battery with power level higher than 50%.
- Do discharge the power to 50% or less before transportation.(The suggested battery voltage level of the drone is around 15.8V, and the radio controller is 7.9V)
- Do discharge the power to 50% or less when you are not going to use the drone in the coming days.

Battery Maintenance

Never use the battery when the temperature is too high or too low.
Never store the battery in environments with a temperature higher than 60°C .
Do discharge the power to 50% or less when you are not going to use the drone in the coming days.
Never store the battery for a long time after use. If need to store for long time, need to fully charge the battery and then discharge to less than 50% every one month. Otherwise the battery will become over-discharged, and ruin the battery.
Never over dis-charge the battery, otherwise the battery cells will be damaged.
Do not charge battery immediately after flight, because the battery temperature may be too high.

Battery Disposal

Dispose of the battery in specific recycling boxes only after a complete discharge.
DO NOT place the battery in regular trash containers. Strictly follow your local regulations regarding the disposal and recycling of batteries.

Pre-Flight Inspection and Checks

- Make sure all batteries are fully charged.
- Check all propellers are in good condition and correctly fastened. The edges of the propeller blades must be smooth and undamaged.
- Manually rotate the 4 motors to ensure they can spin smoothly.
- Ensure the sealing surfaces of the cover are clean, free of dirt, sand, or any other contaminants.
- When the drone is flying in the water and landing to replace the battery, please wipe the battery cover and the surrounding water droplets first. Avoid dripping into the engine compartment when opening the battery cover and causing damage to the product

Flying Guide

- Many regulations require the pilot to fly a drone within line of sight. Take particular care when flying a drone out of sight.

- Unless it is an emergency, NEVER Lock or STOP the motors in flight as this will cause the drone to fall to the ground and crash.
- When the low battery level warning is activated, plan to return the drone and land safely before the battery reaches a critical level.
- The Return Home function can be used to reorient the drone towards the Home Point. By activating the Return Home function, the drone will rise to the return altitude (20m) and then turn towards the Home Point before starting its return.
- If any obstacles are in the flight path of the drone during a Return Home process, control should be regained by turning off the Return Home function.
- If you inadvertently crash your drone, lock the motors to prevent damage to the motors and propellers.
- Do not attempt to touch the motors, until the motors have stopped rotating.
- When landing from water, avoid high-speed or abusive landings to avoid damaging the drone.
- When flying over water, avoid allowing the drone to drop or crash into the water from a high altitude as this could cause major damage to the drone.
- Don't expose the drone & battery to direct sunlight for sustained periods of time as this can raise the internal temperature of the drone to well above the operating temperature range.
- If the drone does not appear to be responding to the Remote control as usual, switch the drone to ATTI flight mode and fly the drone to a safe landing location
- The possible causes for the instability or loss of control of the drone could be poor GPS signal or radio or magnetic interference or poor calibration practices.
- If the drone appears to be affected by magnetic interference, try the following remedies.
- Re-calibrate both the compass and accelerometer on the SD4.
- After completing the calibration, arm the drone motors to fly in GPS mode to verify whether this phenomenon has been eliminated.
- If the abnormality remains the same, please re-locate to another place at least 5KM away and re-calibrate the SD4. Following the re-calibration, please test the drone again.
- If the problem persists, please contact SwellPro or your local dealer for further trouble-shooting and solutions.

Maintenance

- Please make sure to double-check the propellers after flight. Distorted or damaged propellers should be replaced immediately.
- After flying over the sea, sand or water, the SD4 and modules must be thoroughly washed with fresh water within 2 hours and dried - especially the motors, gimbals and camera.
- It's strongly advised to rinse the drone before any salt crystalizes.
- Motors are best rinsed by **removing the propellers** and immersing the motors one at a time into a bucket of warm fresh water and arming the drone in ATTI flight mode so the motors spin underwater.
- In the event of the SD4 not being used for a long time, please store the drone and the batteries in a dry, and ventilated environment at 20°C~28°C.

Flight Safety

- Please make sure you have a comprehensive understanding of the SD4 and all the necessary measures required to implement a successful return home function in the event of an emergency.
- Please be well prepared before each flight, avoid any violent or excessive operations.

- Please maintain strict compliance with the local laws, any flying in NO-FLY ZONES is prohibited.
- Any illegal & improper use or operation of this product is prohibited.
- Any invasion & violation against another person/s right of privacy is not allowed. Before using this product, it remains the duty of the drone pilot to comply with the local laws regarding privacy protection.
- Any invasion or flying over another person/s property is not allowed, please agree with any person/s regarding any potential breach of privacy before the proposed flight.
- DO NOT fly the SD4 under the influence of alcohol, drugs or any other physical or mental impediment.
- Don't fly the drone with a malfunctioning radio controller.
- Please fly the drone away from crowds.

Restricted Area

Airport   Crowds

Threats to Flight Safety Scenarios

Radio signal tower   Radar   High voltage power lines   Trees   Tall buildings

Disclaimer and Warning

This product is not a toy and should only be operated by persons over the age of 18. Please keep it out of reach of children and pay particular attention to the possible scenarios of children unexpectedly appearing during flight operations.

Be sure to read this document carefully before using the product, to fully understand your legal rights, responsibilities and safety instructions. Failure to do so may cause property damage, accidents and personal injury. Once this product is used, it is deemed that you have understood, recognized and have accepted all the terms and conditions of this statement.

The user is responsible for all the consequences of his actions and the use of the product. The user agrees to use the product for his sole & legal purpose, and agrees with the terms & conditions of this agreement, and other relevant policies & guidelines that may be specified by SwellPro.

Under the maximum permission by law and approved circumstances, SwellPro accepts no liability for any indirect, punitive, consequential, special or criminal damages, including the purchase cost, or for loss of income due to the loss of use of the drone.

SwellPro is exempt from the user's liabilities for damage(s) to person/s or property, or injuries incurred directly or indirectly from the use of this product in the following conditions:

- Damage or injuries incurred when the user/s are under the influence of alcohol, drugs or medication.
- Any malfunction caused by operators' failure to follow the guidance of the manual to assemble and set up or operate the drone as described and designed.
- Damage or injuries that may occur due to failure to study the tutorial videos and the user manual before flying the drone.
- Damage or injuries caused to a person/s or property due to failure in correctly calibrating the drone as outlined in the manual prior to flight.
- Damage or injuries incurred as a result of the use or installation of any unauthorized third party accessories or counterfeit parts - which were not provided and approved of by SwellPro.
- Damage or injuries as a result of flying the drone out of eyesight range, or more than 300m away from the controller.
- Damage or injuries caused by flying the drone in areas of magnetic fields & radio interference.
- Damage or injuries caused by flying in a NO-FLY ZONE that is regulated by local laws & rules.
- Damage or injuries including crashes, loss of control or water ingress caused by abusing or modifying the original drone structure,
- Damage or injuries caused by using broken & ageing components.
- Damage or injuries caused by continuing to fly the drone even if the low battery alarm is activated.
- Damage or injuries caused by failure to wash the components with fresh water after flying over or near the sea & corrosive waters.
- Damage or injuries that have occurred when the drone has been subjected to the following conditions or situations: collision, fire, explosion, floods, tsunamis, ice, snow, avalanche, flooding, landslide, earthquake, etc.
- Damage or injuries incurred by intentionally dropping or crashing the SplashDrone into the water from a high altitude, especially water ingress into the drone fuselage and gimbal malfunction.
- Damage or injuries incurred by intentionally dropping or crashing the SplashDrone to the ground or water from a high altitude, especially water leakage into the drone fuselage and gimbal frame as a result of this collision.
- Other Damage(s) or injuries that are not SwellPro's liability.

Version Information

SwellPro products are constantly being improved. Therefore, although the latest version of this manual may contain information relating to a release of the equipment different from your own, new information is added constantly which is relevant to ALL customers.

Version

1.0 Splashdrone 4 First edition User Manual

1.1 Modification and correction of manual content

2.0 First English version

2.1 First Check by EH.

2.31 Minor text revisions

2.5 Second Check by EH.

2.6 Third Check by EH.

2.8 Add Sport mode and ATTI slow mode