QYSEA

FIFISH V6 EXPERT

Quick Start Guide
V2.1

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Safety and Regulations

Operating FIFISH products requires training and practice. Please read through this document before operating in water.

Do NOT touch the running propeller

Avoid overheating of motors, do NOT run the thrusters in air for over 30 seconds

Do NOT throw the ROV when deploying into the water

Do NOT look directly to the LEDs, and do NOT touch the LEDs when they are ON

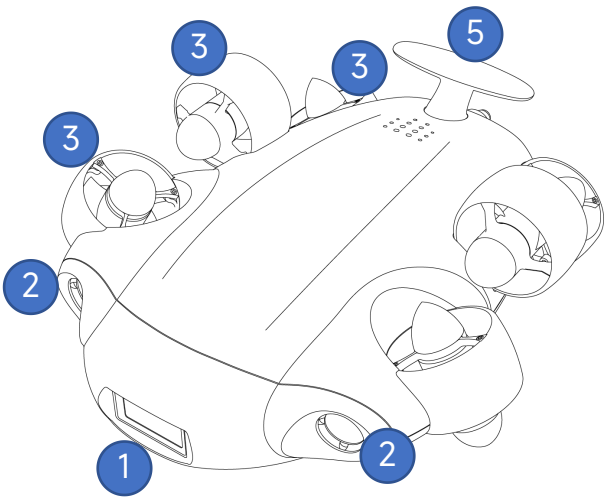
Beware of the environment while operating the ROV (tide, water level, water traffics, etc.)

Avoid the reefs, rocks, seaweeds, fishline or other objects that may cause damage to or entanglement of the ROV or tether

Be part of marine protection and conservation for the local coral and marine life

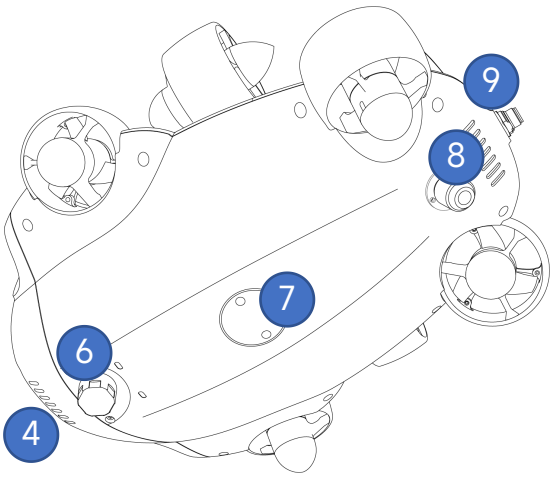
Maintain after dive, check the, Maintenance Guide in page 30-32

Definition, ROV



FIFISH V6 Expert ROV

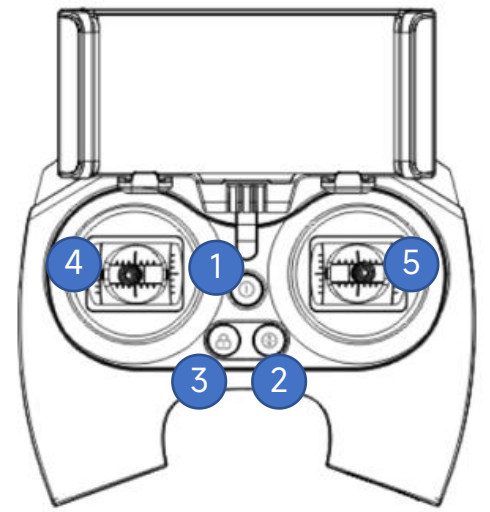
1. 4K UHD Underwater Camera
2. 3,000 lumens LED × 2
3. Vector Thruster × 6
4. Venting Holes
5. Rear Wing [1]
6. MicroSD Card Slot
7. Mounting Port
8. FIFISH Q-Interface [2]
9. ROV Tether Port [3]

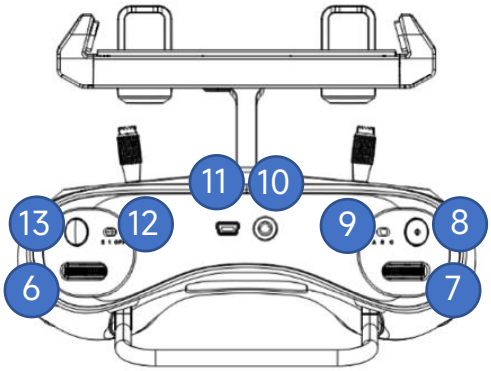


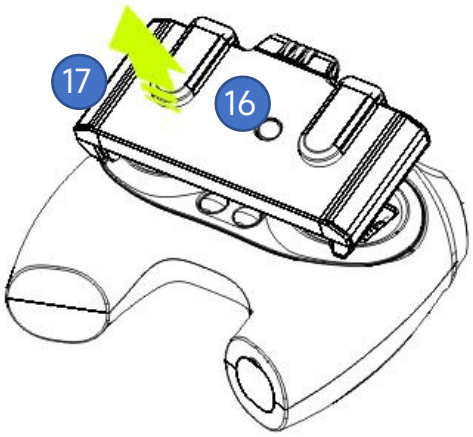
NOTE:

1. Do **NOT** shake or swing while holding the rear wing.
2. Hook tether's securing loop on the stem of rear wing when connect (See **Preparation and Connection** / Hardware Connection in page 9-11)
3. The all ports including **FIFISH Q-Interface™** shall be clean and dry at all time.

Definition, RC

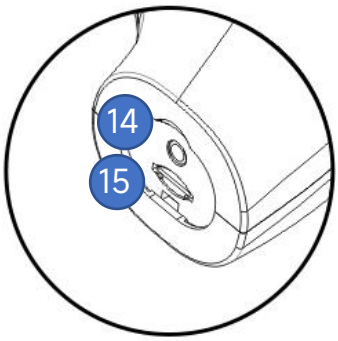




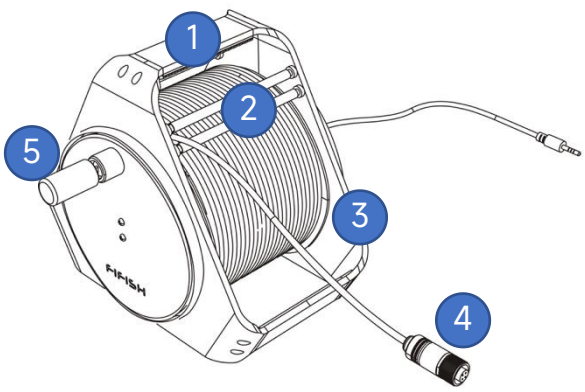


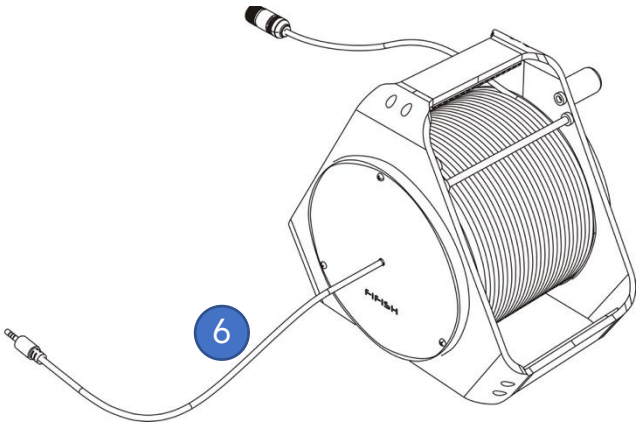
RC (Remote Controller)

1. ON/OFF
2. Depth Holding
3. Lock/Unlock
4. Left Control Stick
5. Right Control Stick
6. Right Wheel
7. Left Wheel
8. Video (Record/Stop)
9. Control Mode (Attitude / Sport / Combination)
10. Tether Port
11. Ethernet Port (mini USB)
12. LED Brightness (OFF / 1 / 2)
13. Photo (Snap) 2
14. Charging Port
15. microSD Card Port
16. Clamp Release Button
17. Clamp for Smart Device



Definition, Tether Spool





Spool and Tether

1. Spool Handle
2. Tether Regulator
3. Spool Frame
4. Tether ROV Plug
5. Foldable Handle
6. Tether RC Plug (3.5mm AUX plug)

NOTE:
Please avoid submerging the tether spool in water. The roller part of the tether spool is not waterproof, and improper handling may result in damage to the reel.

Definition, Accessories

2D Image Sonar
Scan beyond visual distance or visibility

U-QPS
Underwater position in real time, and route plan search

Robotic Arm
Grab & retrieve subjects below the surface

Water Sampler (500 mL)
Collect water sample from certain depth and position

Definition, Accessories

pH Sensor
Monitor pH in real-time

Q-Camera with LEDs
Provide secondary view
for underwater survey

Definition, Accessories

HDMI Box 2.0
Download original resolution videos when recording, LIVE output HDMI signal

RC Sun Hood
Provide shade for tablets

Edge Box
Enable to remote control globally

There are more accessories on the way.

For more information about add-ons or accessories, contact our local authorized dealers for an on-site demonstrations.

Preparation, Check and App Install

Checking List

1. Gears checking
2. Battery is full (ROV, RC, cell/tablet)
3. ROV sensor calibration [1]
4. Smart device compatibility [2]
5. Enough memory for recording/picture
6. Team role setting (pilot, tether man, guide)
7. Entanglement threats, such as, the boat engine, underwater structures, and corals etc.

NOTE:

1. If you travel to elevated lakes, low land lakes, or air pressure has changed. Do a ROV sensor calibration is highly recommended (Check ROV Sensor Calibration in page 22)
2. The best compatible smart devices list in, in FIFISH App, help/FAQ/Before Dive, #6

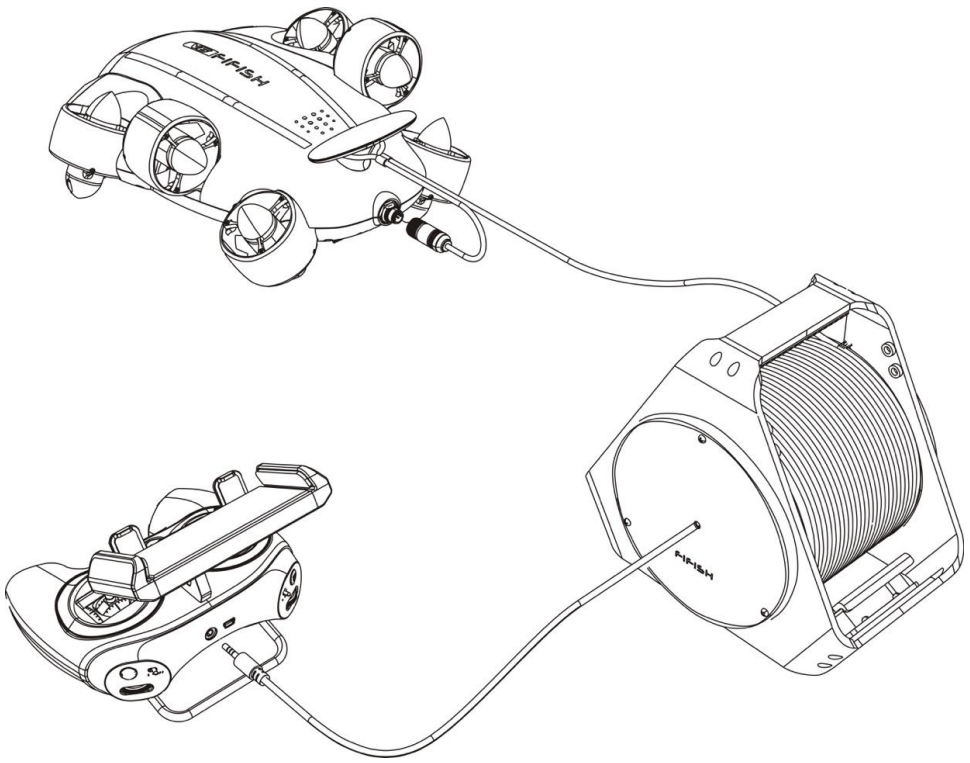
FIFISH App download and Installations

Option 1. Scan the QR code below to download FIFISH App.
Option 2. Search the FIFISH on App Store (iOS) or Google Play (Android).
Option 3. Go to QYSEA's website at https://www.qysea.com/support/app-download/

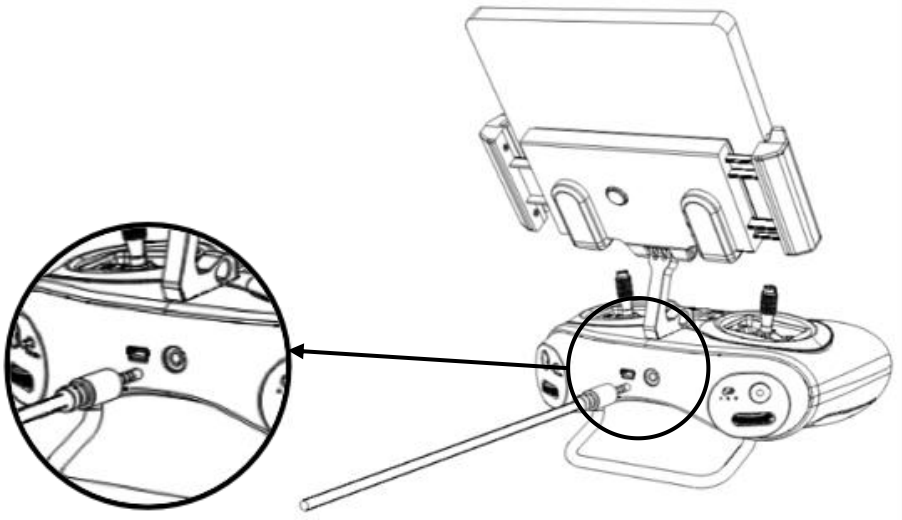
Preparation, Set-up, Hardware

2. Hardware Connection

Overview of hardware connection

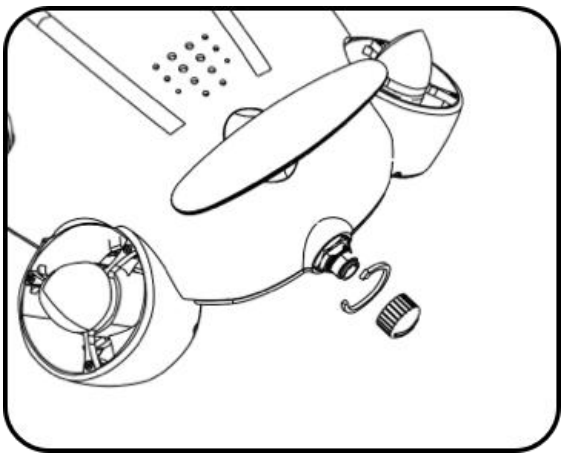


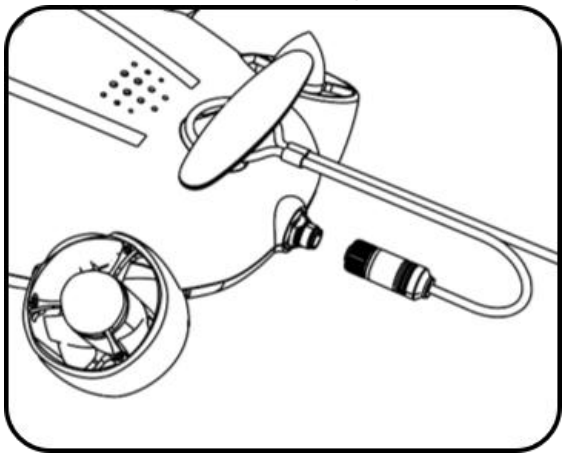
2.1. Plug the tether (3.5 mm head) into remote controller



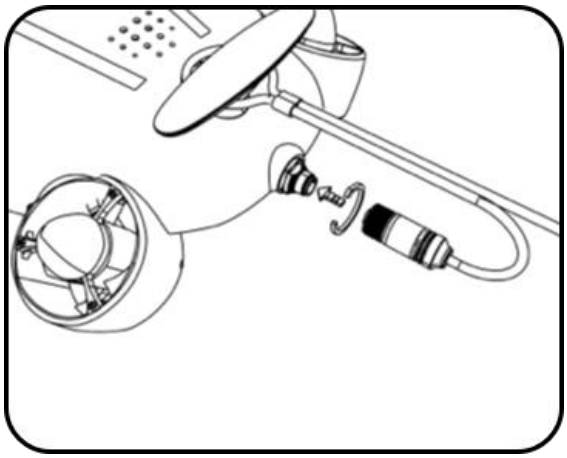
Preparation, Set-up, Hardware

2.2. Take off the protective cap, tie the knot around the rear wing



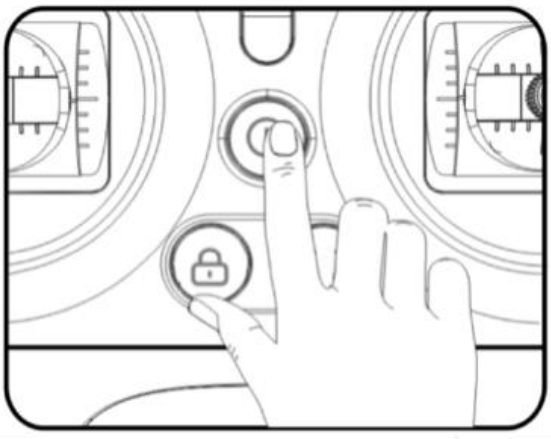


2.3. Plug the ROV Plug into the ROV Tether Port (**finger tight**)



2.4. Turn ON the RC. Press and hold the ON/OFF button (3 seconds)

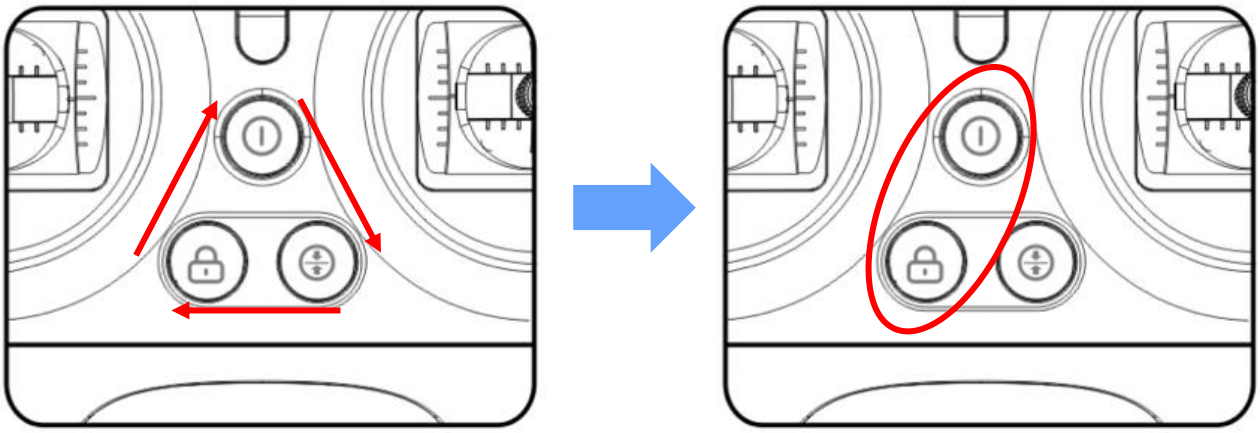
- RC will play 7 chimes from low to high (Do, Re, Mi, Fa, Sol, La, Ti)
- ROV will turn on automatically, and play 5 chimes (Do, Re, Mi, Do, Mi)



Preparation, Set-up, Hardware

2.5. Take off the protect cap, tie the knot around the rear wing

- The “ON/OFF”, “Depth Holding" and "LOCK/UNLOCK” will flash and rotate clockwise, which indicates "Ready to be connected“
- In about 30 seconds, the "ON/OFF” and "LOCK/UNLOCK” buttons will stay solid that indicates the hardware connection successfully

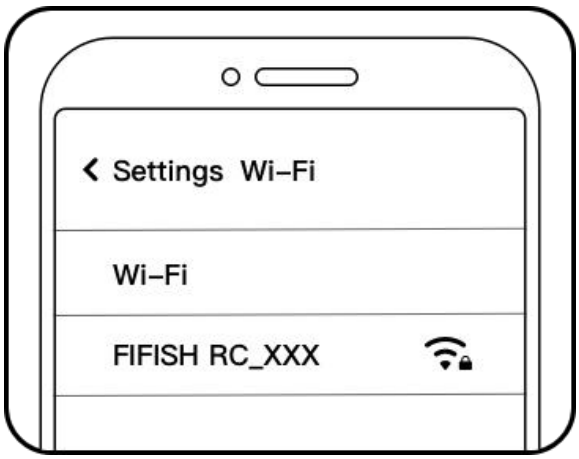


Preparation, Set-up, Software

3. Software Connection

3.1. Smart device connect with the RC's Wi-Fi (5 GHz)

- Find the Wi-Fi network name “FIFISHRC_xxxx”
- The password is "1234567890”



3.2. Open FIFISH App, then press “**Go Dive**”

- Allow access to photo albums, location, and notifications
- Even the network did not connect to internet, select the “**Keep Trying WLAN**” for iOS user, “**Stay Connected**” for Android user.

NOTE

The operation interface will be introduced in chapter **FIFISH App**, page 16-17

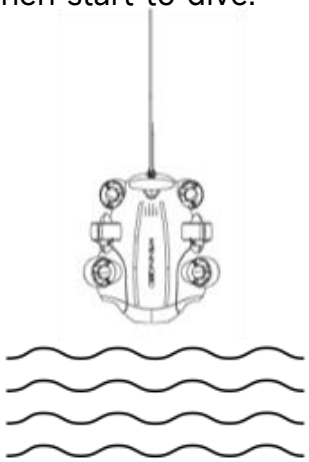
Preparation, ROV Sensor Cal, Deploy and Retrieve

4. ROV Sensor Calibration *(Check the FIFISH App Charter, ROV Sensor Calibration Page 22)*

4.1. Go to **General Setting**
4.2. Select the **ROV Sensor Icon**
4.3. Follow the hit on FIFISH App step by step, first ***Gyro-Acce*** then ***Mag***
4.4. **Reboot ROV** in FIFISH App, and Power ON/OFF RC if necessary

5. Deploy the ROV

- ONLY pulling on the tether to deploy the ROV into the water.
- Unlock the thrusters then start to dive.



NOTE

The depth shall greater than 1 meter (about 3 feet) for better operation experiences.

6. Retrieve

6.1. **LOCK** the thrusters
6.2. **STOP RECORDING** the video before closing the FIFISH App
6.3. **ONLY PULLING** on the tether to retrieve the ROV

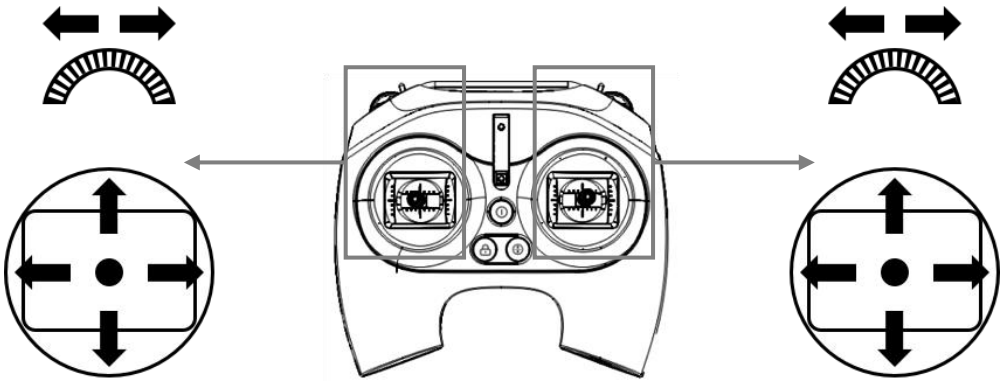
Controlling, Definition

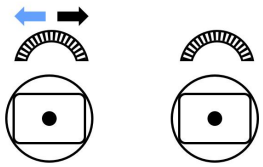
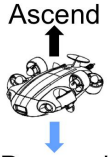
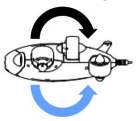
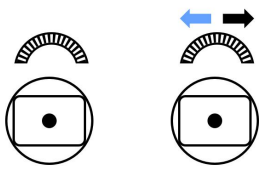
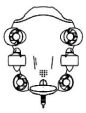
Definition of Controlling

The FIFISH PRO V6 Expert uses the patented ***Smart Thruster Array***™ to ensure the ultimate maneuverability and delivers the 6 DOF (degree of freedom).

- V6 Expert can move in descend & ascend, left and right, forward and backward.
- V6 Expert can rotate in 360 yaw (z-axis), 360 pitch (y-axis), 360 roll (x-axis).

We have simplified the Left Joystick, Right Joystick, Left Wheel and Right Wheel into the following symbol. The arrows on RC indicate the command and the arrows on ROV indicate the actual movements.



Remote Controller	V6 Operation Preference Setting	
	ROV Modes (USA/JPN/CHN)	UAV Modes (USA/JPN/CHN)
	Ascend  Descend	Pitch Up  Pitch Down
	Left  Right	Roll Counter Clockwise[1] Roll Clockwise[1]

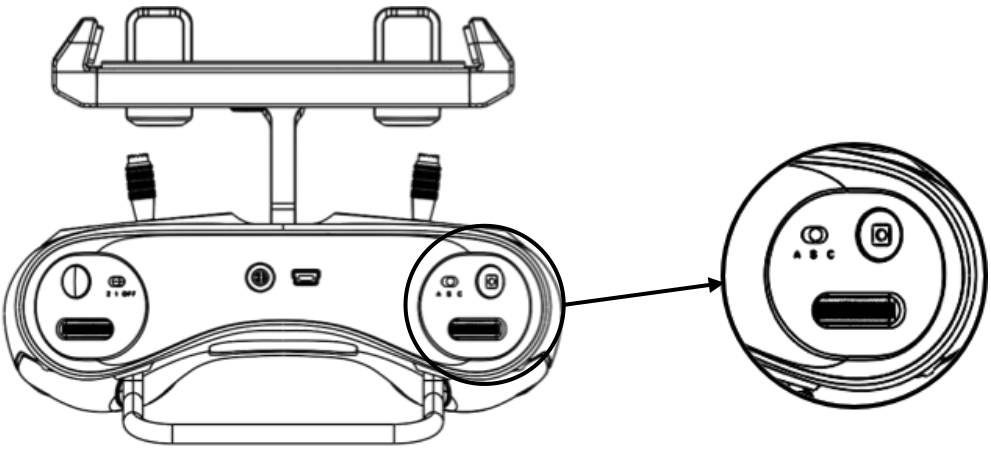
NOTE:

From the FPV (first person view) the **blue** is rolling counterclockwise and **black** is rolling clockwise, and the rolling can activate in Sport or Combination Mode.

Controlling, Controlling Modes

Controlling Modes

FIFISH PRO V6 Expert supports 3 modes for control: A, S, and C.
A is Attitude mode, S is Sport mode, C is the Combination mode.



Attitude Mode

Attitude mode is designed for beginners. The ROV will not roll in Attitude mode. The ROV will stay in same depth moving when depth holding is ON. Even with pitch angle, the depth will be the same.

Sport Mode

Sport mode is designed for skillful pilots. Sport mode will enable the rolling freedom, so, you will access all 6 degree of freedom of V6 Expert. Controlling and moving based on the FPV (Frist Person View), do not operate in third person view. The ROV will only stay in the same depth with no command input, when depth holding ON.

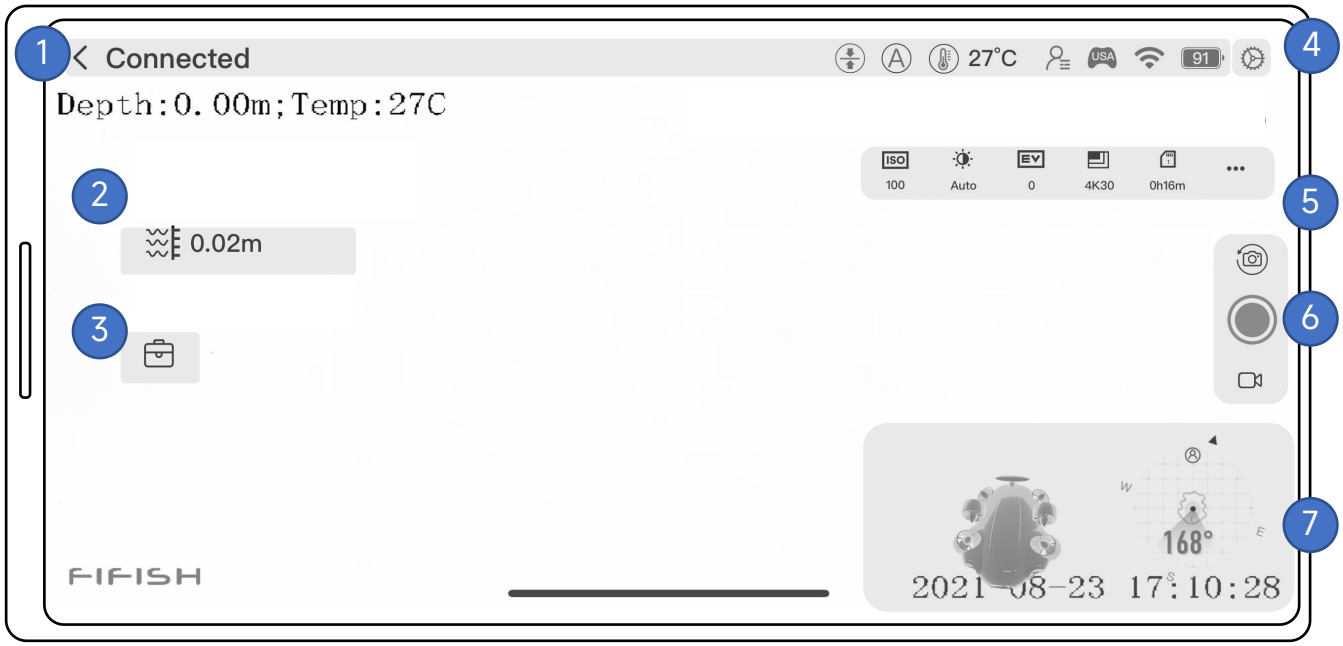
Combination Mode

Combination mode activate the head tracking controlling via the VR Goggle, which allow pilot to use the VR Goggle to pitch, roll and yaw. Combination mode delivers the intuitive control and immersive experiences. Combination mode supports head tracking and remote controller working together.

Accessories Attached

The right wheel will ONLY be working in Attitude mode or Combination mode for motor driven accessories. *For example, robotic arm, water sampler, robotic fish clamp, and compass ruler, and sludge sampler etc.*

FIFISH App, Operation Interface



FPV Interface in FIFISH App

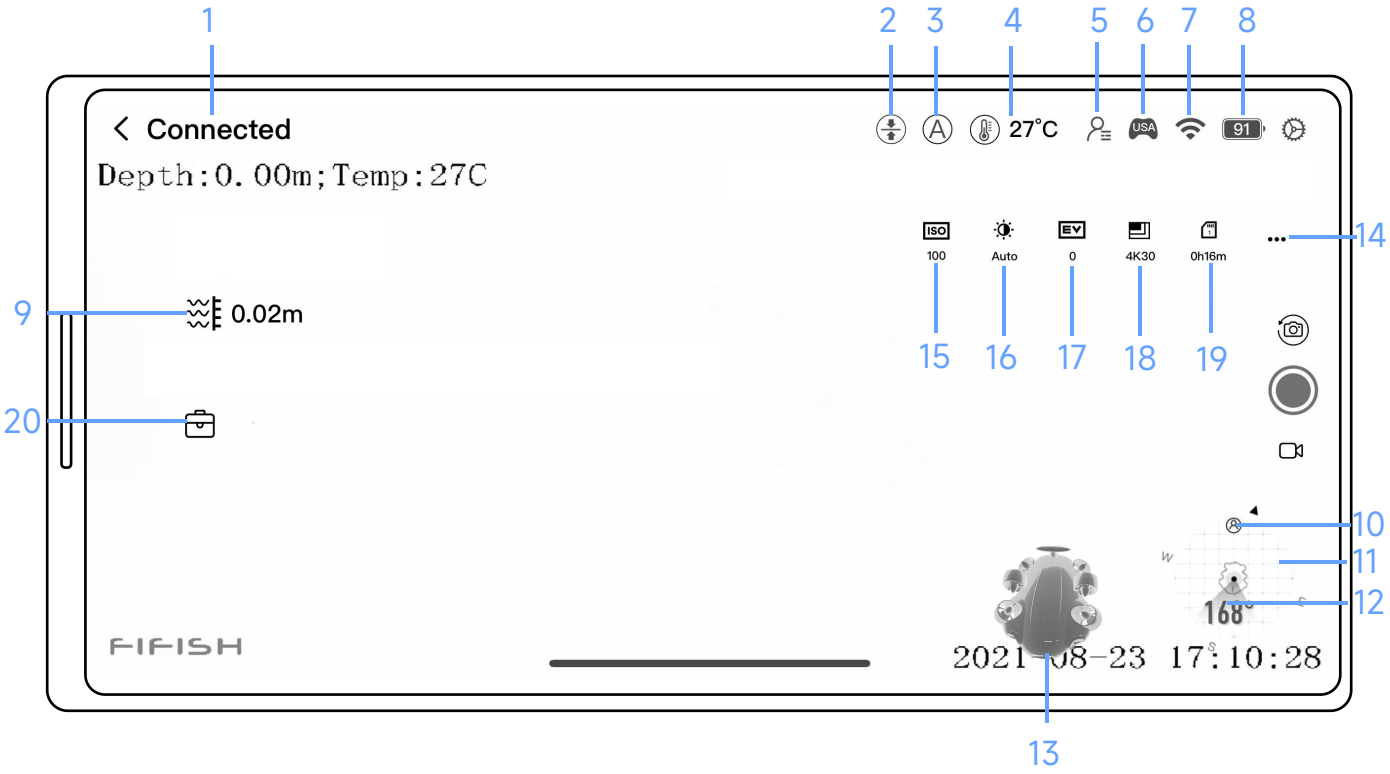
1. Status
2. Navigation Information
3. Additional Features
4. General Settings
5. Image/Video Setting Shortcut
6. Image/Video Button
7. Navigation Chart

Note: This FIFISH App interface is iOS 4.1.0. In order to provide better user experiences, QYSEA software team will keep trimming the FIFISH App. For the latest APP introduction, please go to official website to download the relevant user manual or contact the technical support team.

NOTE:

The additional features will be active when relevant accessories are attached to the ROV.

FIFISH App, Operation Interface



Status

1. Current System Status
2. Depth Holding ON/OFF
3. Control Mode
4. Water Temperature in C/F
5. Pilot or Spector Status
6. Controlling Preference
7. RC's Wi-Fi Signal
8. ROV's Battery in Percentage

Navigation Information

9. ROV Current Depth

Navigation Chart

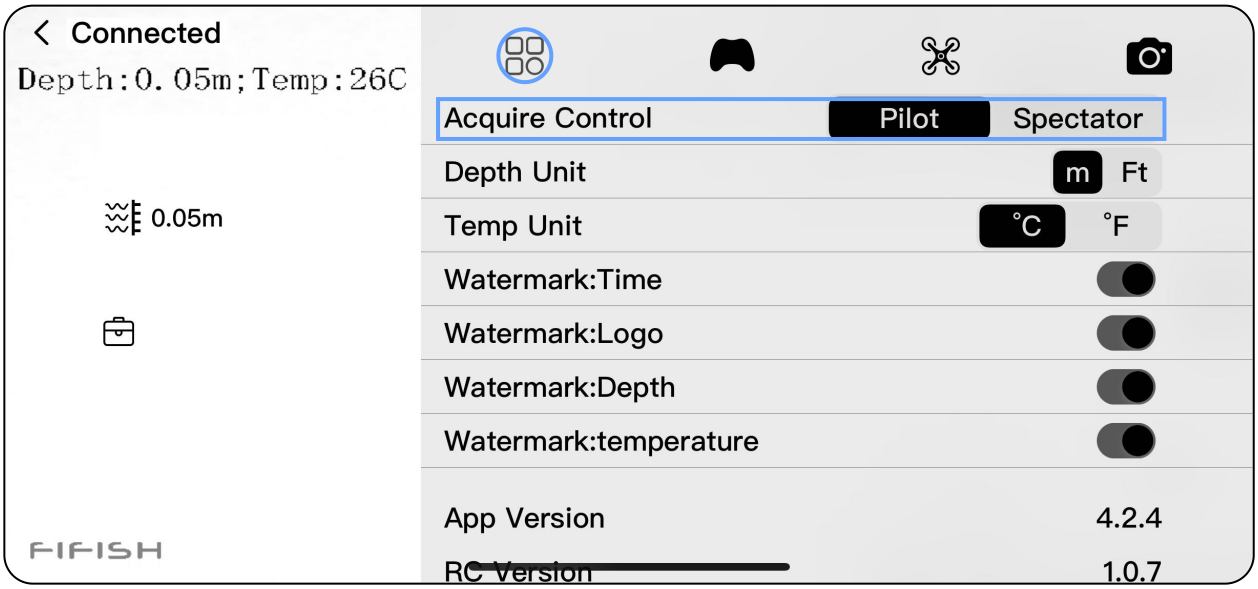
10. Pilot's Heading
11. Compass
12. ROV's Heading in Degrees
13. Posture Indicator

Camera Setting Shortcut

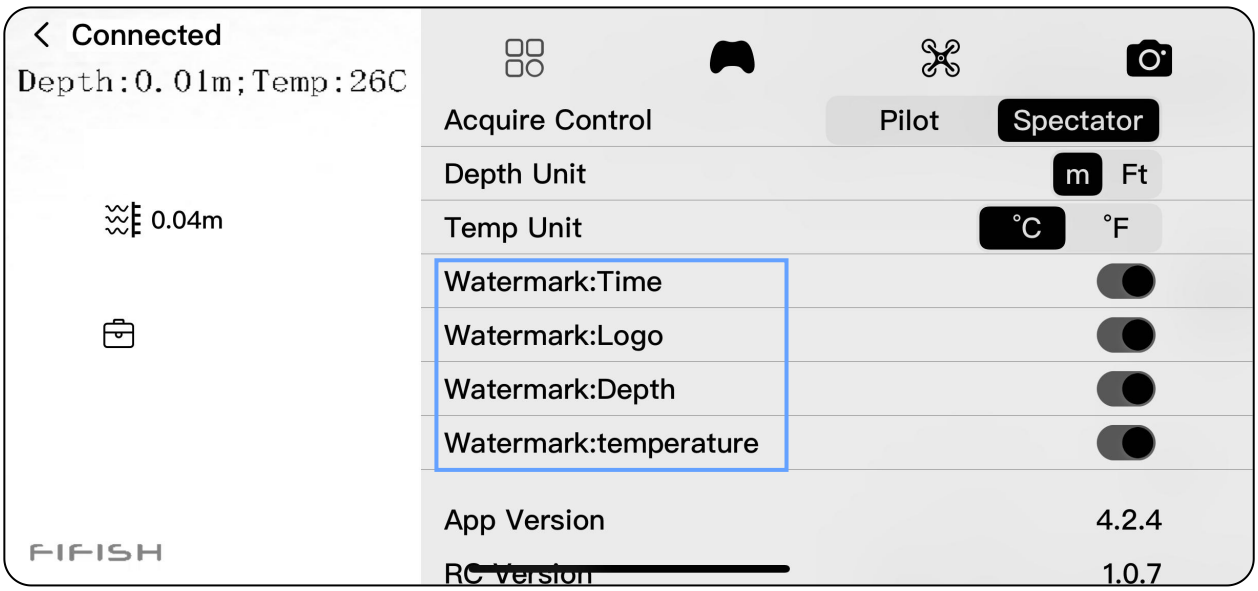
14. Camera Setting
15. ISO
16. White Balance
17. Exposure Value
18. Resolution Frames Rate
19. Remaining Time / Pics
20. Toolbox

FIFISH App, System Setting

General Settings, Select **System Setting Icon** in 1st column



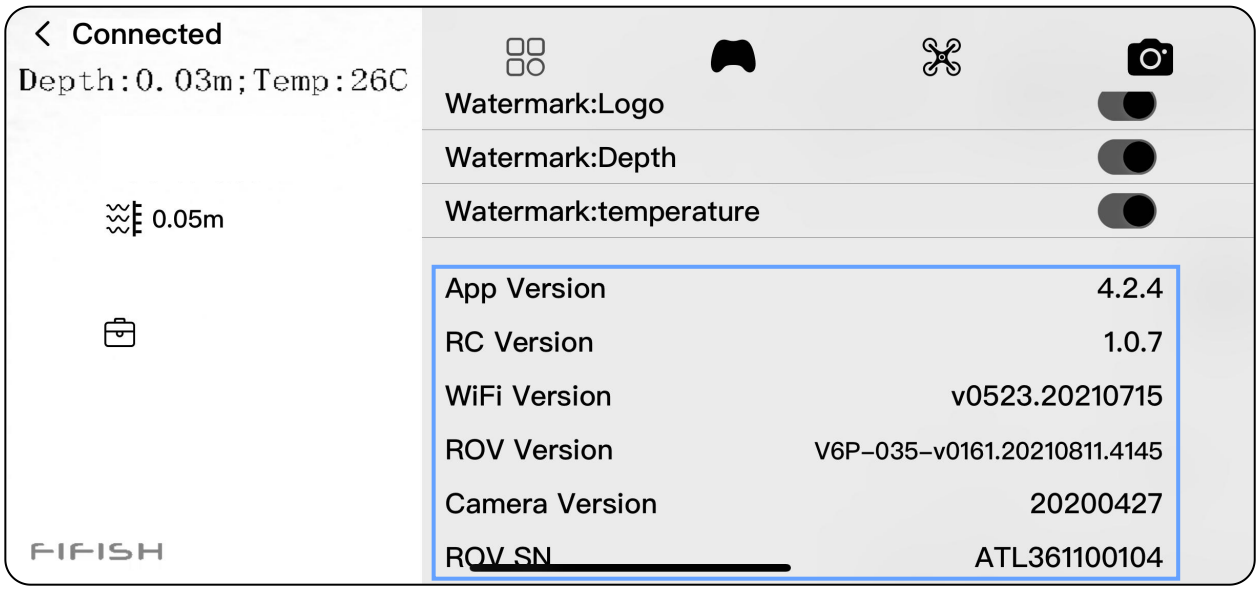
- If you have 2 devices connect to the RC, Click "**Acquire Control**" to get access controlling and adjusting settings
- ONLY the "**Pilot**" can manipulate the settings, such as, watermarks, control preferences, camera settings etc.



- The "**Watermark**" ON will record to video or write on photo, "Watermark" OFF then no trace on video or photo
- Watermark in Time, FIFISH Logo, ROV Depth, Water Temperature

FIFISH App, System Setting

Scroll down the system setting page, the system version information will show up



- The App Version is the FIFISH App version in your cell or tablet
- The RC Version is the RC's motherboard version
- WiFi Version is the RC's Wi-Fi module version
- ROV Version is the ROV's current software version
- Camera Version is the camera module software version
- ROV SN is the identical SN for this ROV

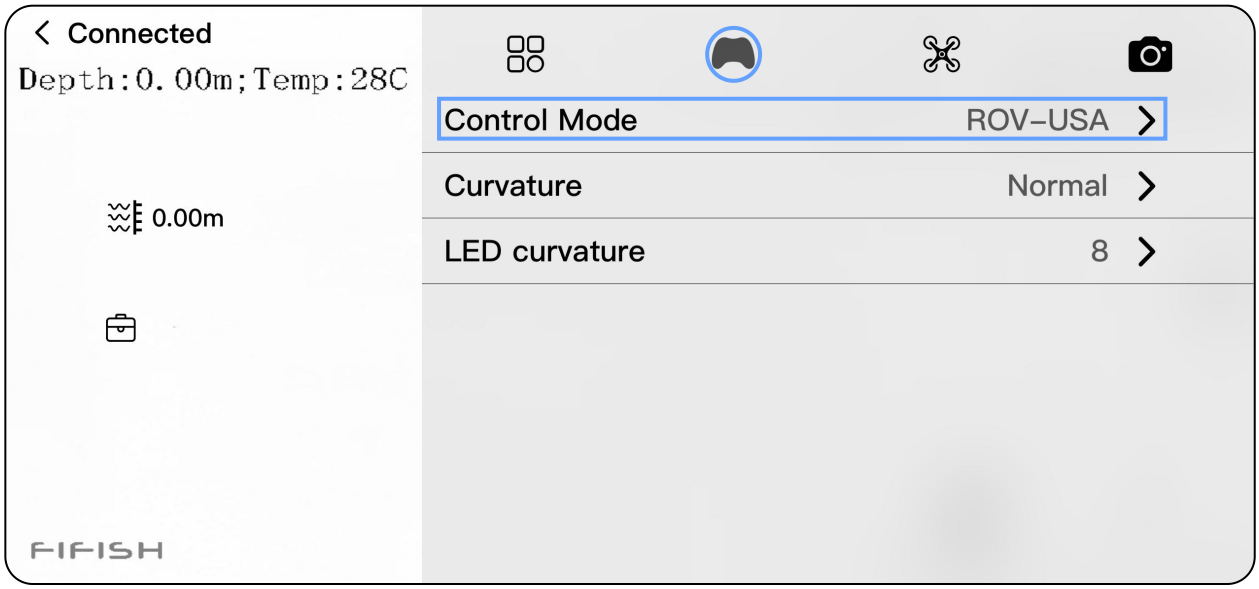
NOTE:

Screen shot of these versions for remote technical support when you are facing any issues.

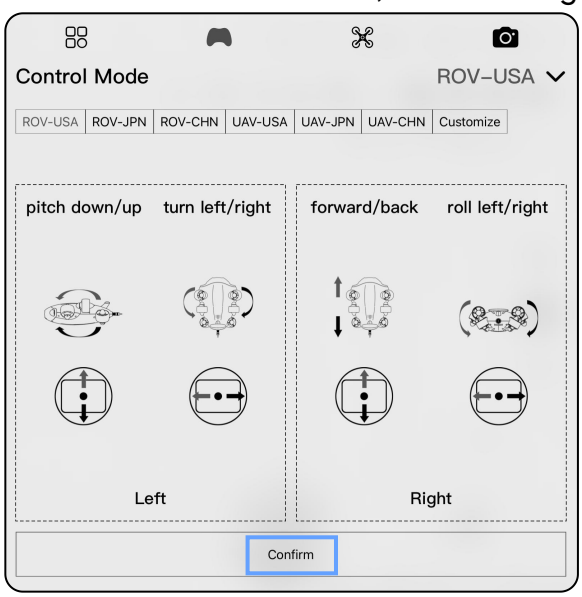
FIFISH App, Controlling Preferences

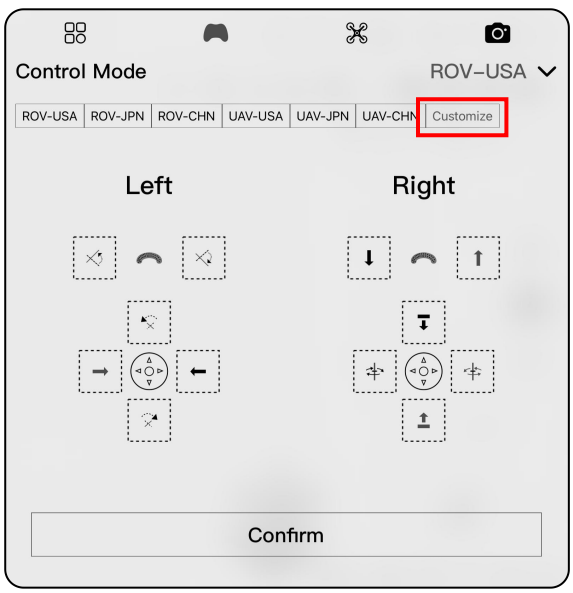
Controlling Preferences

General Settings, Select **Controlling Preferences Icon** in 2nd column



- Click "**Control Mode**", the default is ROV-USA Control Mode, you can select your preferences if you like
- Click "**Confirm**", after setting



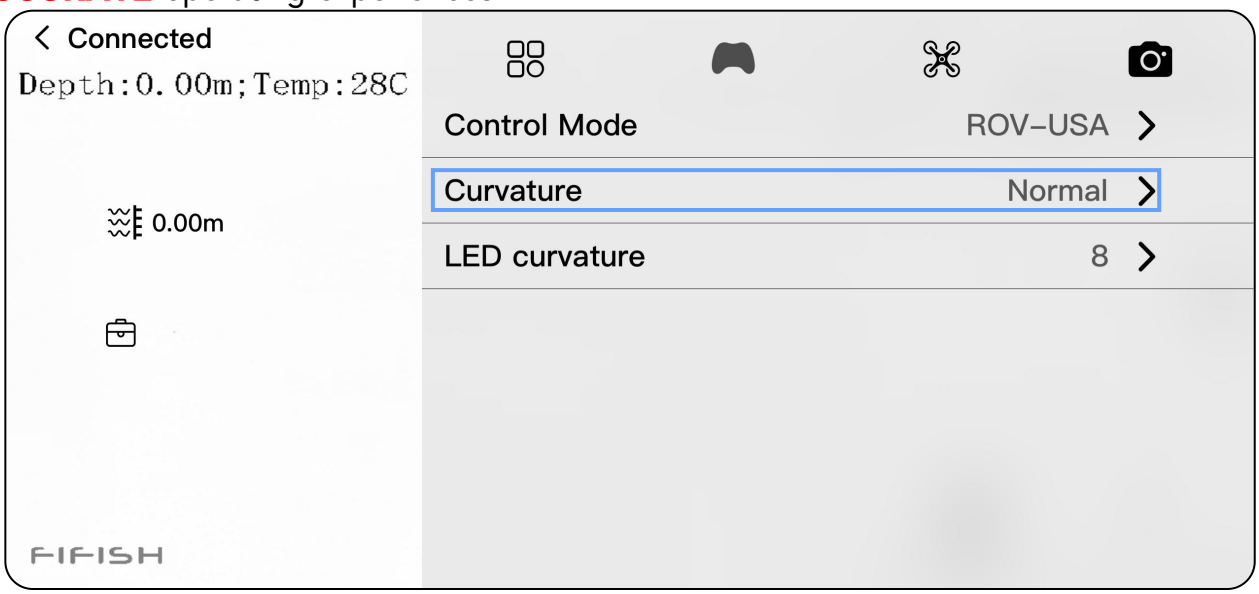


***As for advance level pilot seek for customized setting demo. Please check FIFISH authorized local Dealer or Service Center for more details and training programs.*

FIFISH App, Controlling Preferences

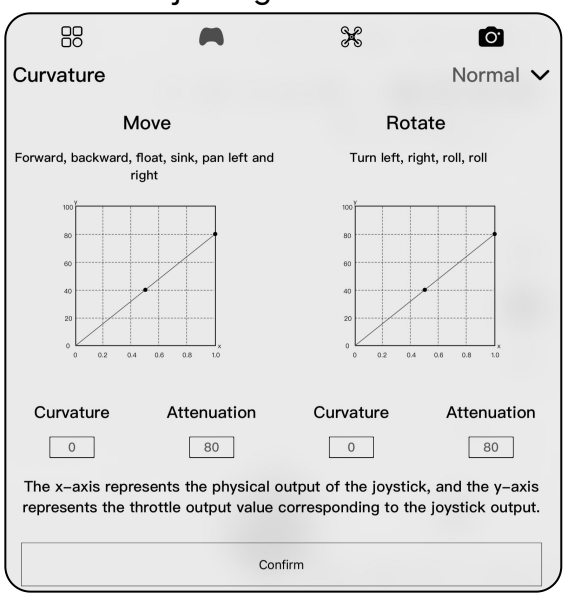
Control Curvature

For the advance level pilot, the curvature setting can provide more **FUN** and **ACCURATE** operating experiences.



Set the Move & Rotate

- Adjusting the curvature (set the center sector output sensitivity)
- Adjusting the attenuation (set the maximum output)

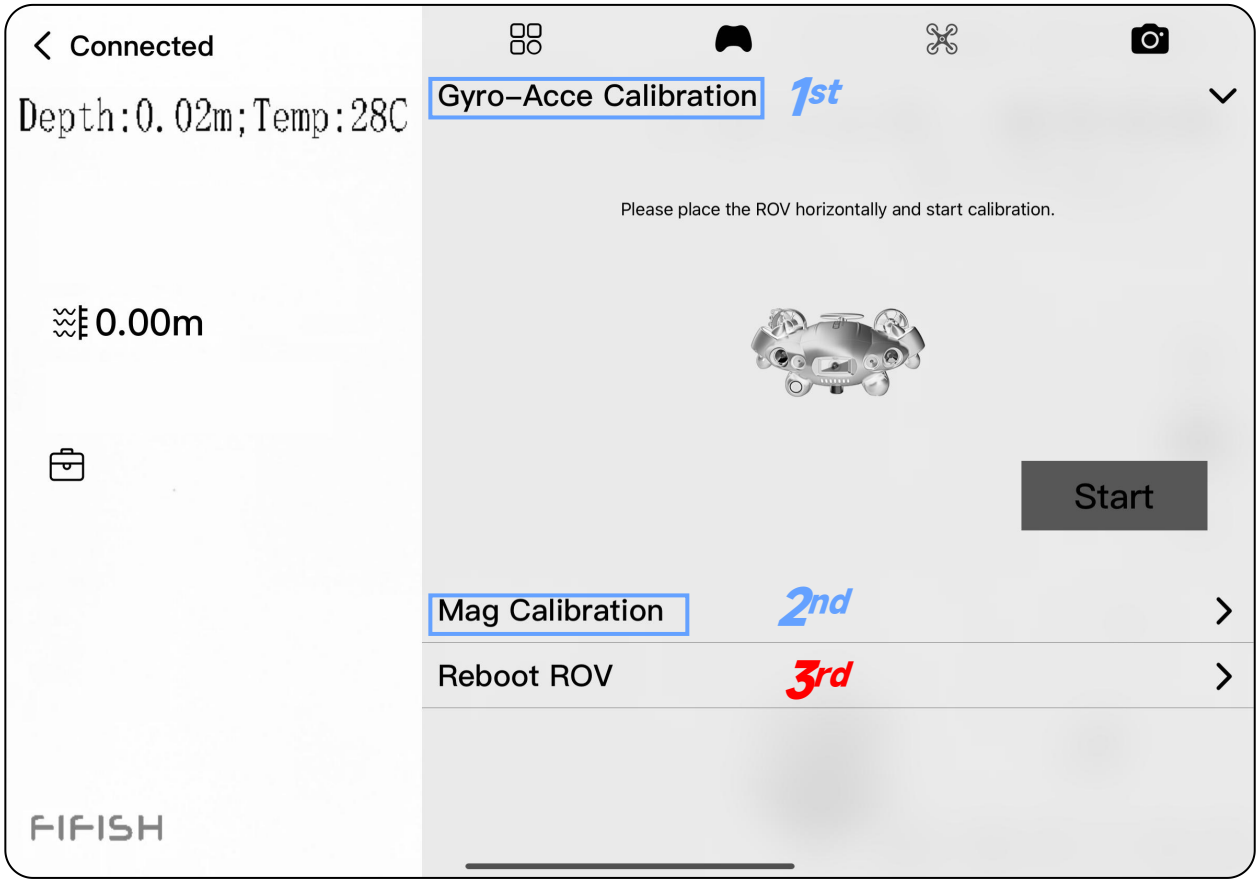


***As for advance level pilot seek for explore curvature setting tips. Please check FIFISH authorized local Dealer or Service Center for more details and training programs.*

FIFISH App, ROV Sensor Calibration

ROV Sensor Calibration

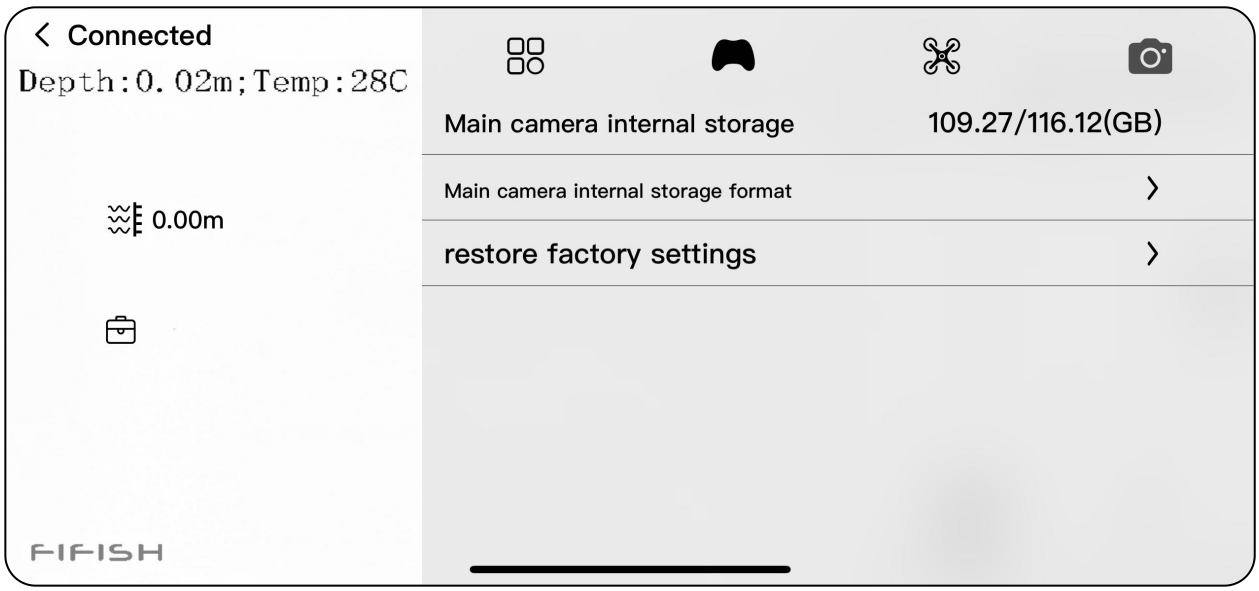
Select the **ROV Sensor Icon** in 3rd column



- Follow the hit on FIFISH App step by step, first **Gyro-Acce** then **Mag**
- **Reboot ROV** in FIFISH App, and Power ON/OFF RC if necessary

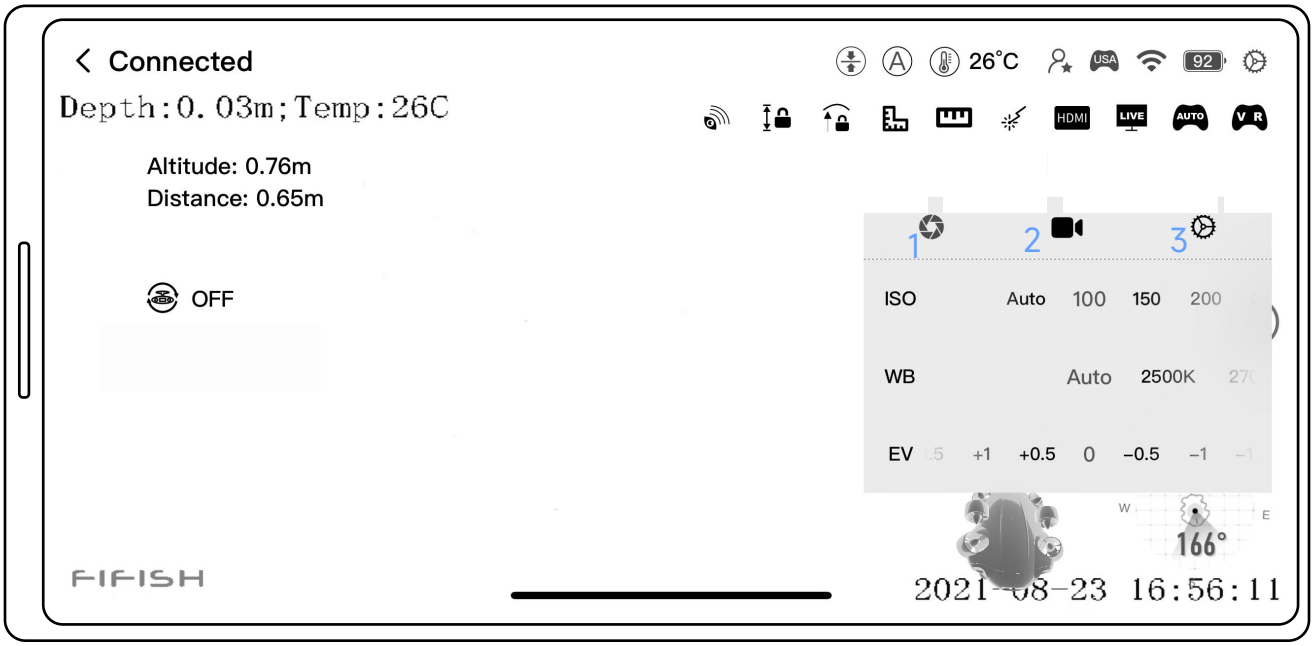
FIFISH App, Camera

The **Main Camera Internal Storage** is ROV's main camera internal memory status.



- Click "**Main camera internal storage format**" will erase the internal memory of main camera
- Click "**restore factory settings**" will reset to default camera settings

FIFISH App, Features, Camera



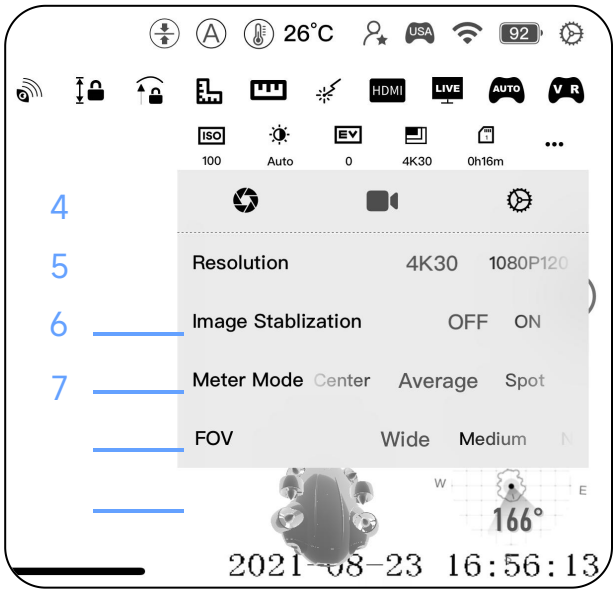
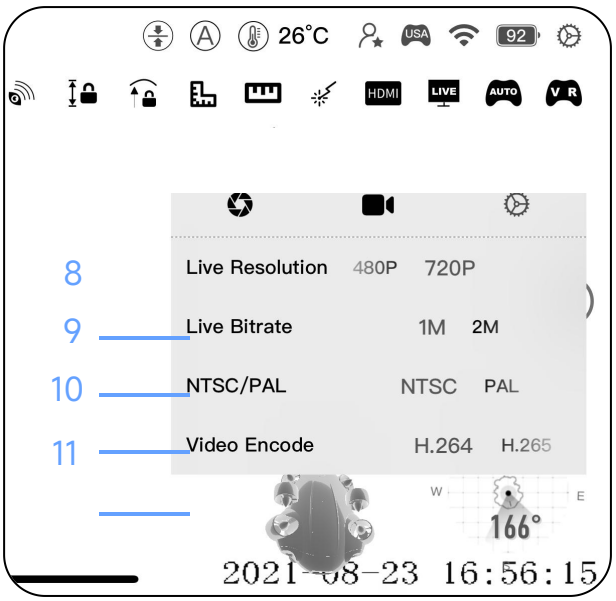


Image Settings

1. Exposure and WB
2. Video Setting
3. Camera General Setting
4. Resolution
5. Image Stabilization
6. Light Meter Mode
7. FOV Settings



Camera General Setting

7. Live Resolution on FPV
8. Live Bitrate on FPV
9. Color Encoding
10. Video Format

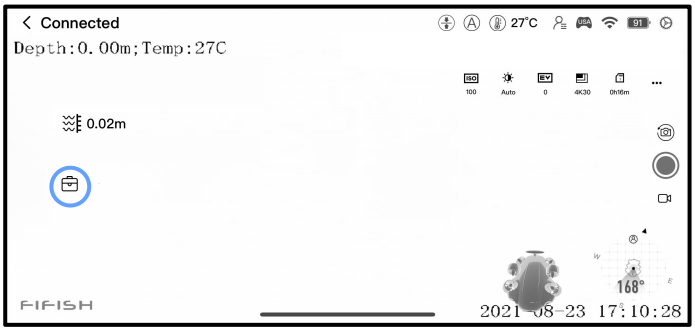
NOTE: *Shortcut camera setting will have the same results.*

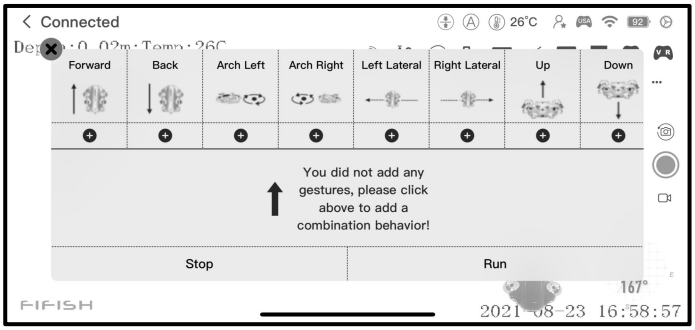
FIFISH App, Features, Assist Driving

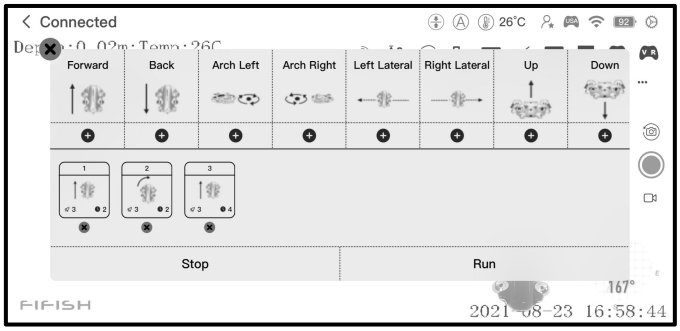
Assist Driving 2nd Gen

The Assist Driving 2nd Gen is able programable auto moving commands.

1. Press the "Toolbox" and select Assist Driving to turn ON
2. Select moving behavior
3. Set speed of such segment
4. Set time of such segment
5. Program next segment
6. Click "Run" to activate the Assist Driving 2nd Gen



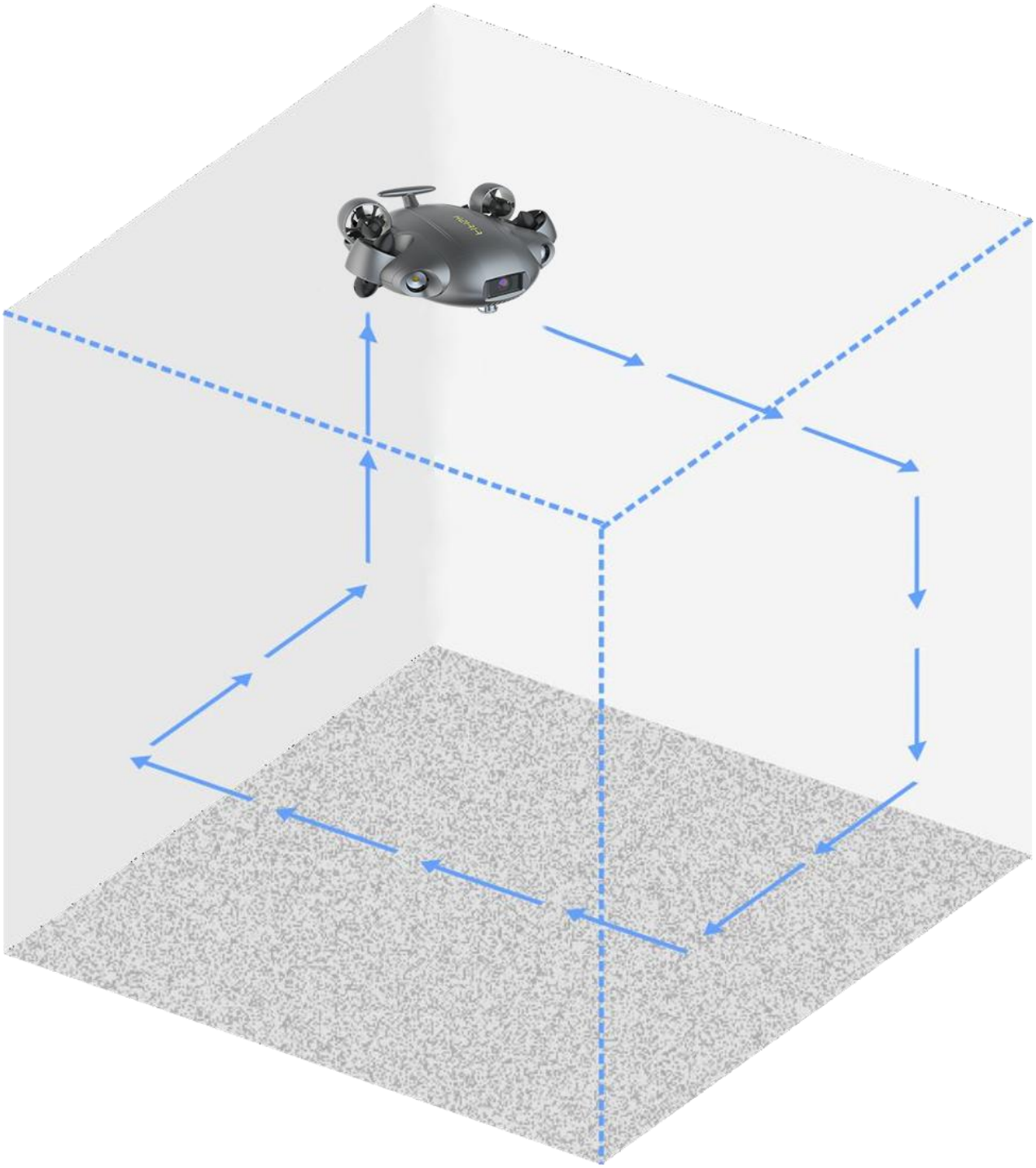




FIFISH App, Features, Assist Driving

Assist Driving 2nd Gen

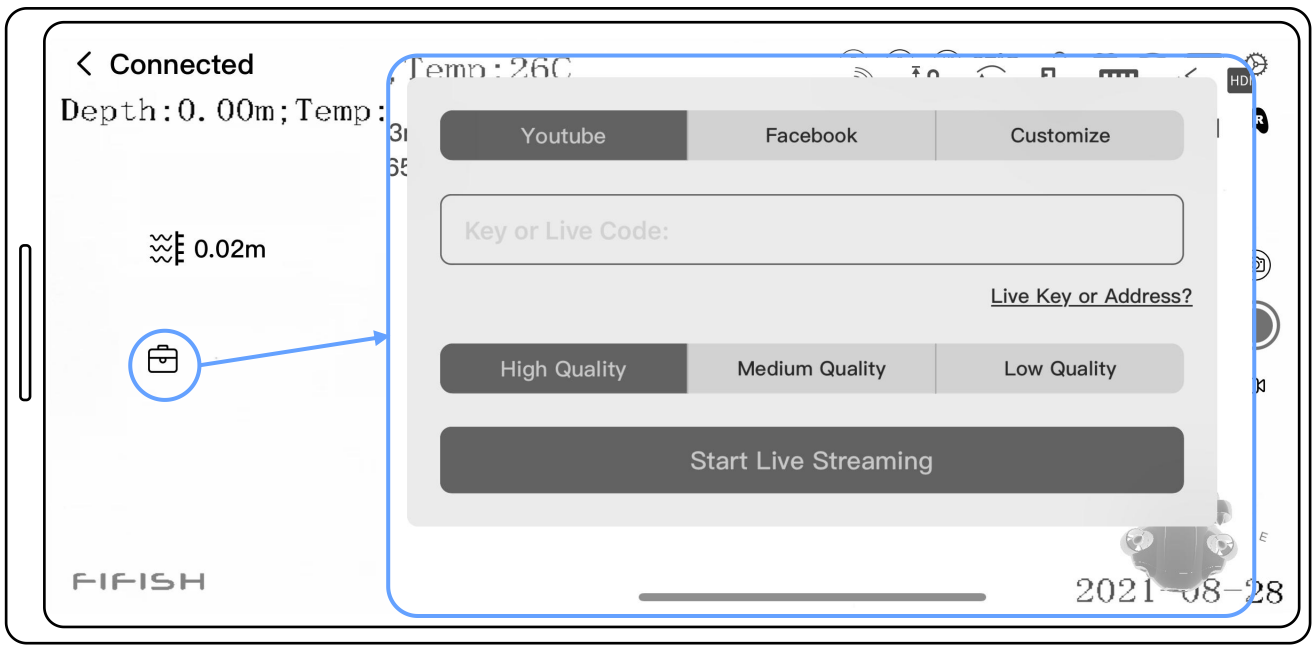
Schematic diagram of the assist driving function



FIFISH App, Features, LIVE Streaming

LIVE Streaming

Board casting directly on **YouTube, Facebook** or other social media network.[1]



1. Generate a **Stream Key** and **Stream URL** on YouTube or Facebook
2. Click the **LIVE** icon in “Toolbox”
3. Past the **Stream URL** and **Stream Key** in column
4. Select the LIVE quality (High, Medium, and Low) [2, 3]
5. Click “**Start Live Streaming**”

NOTE:

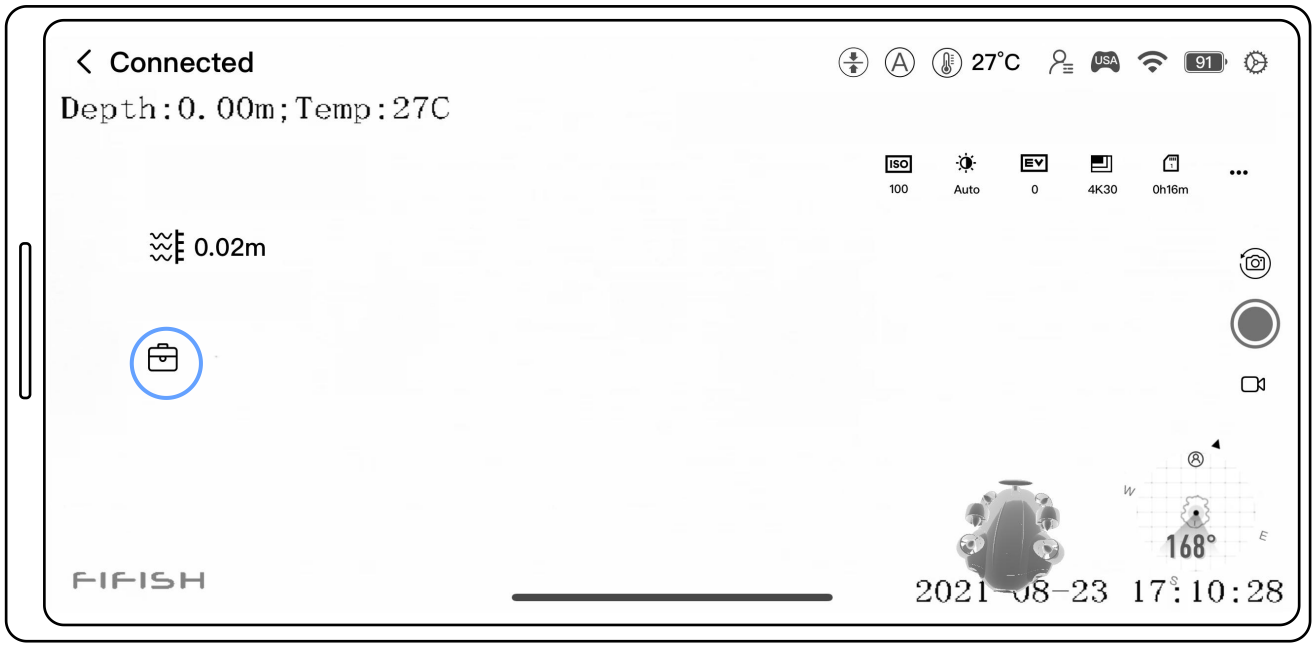
1. This feature will request to use the **iOS devices**. For example, **iPhone** or **iPad** SIM card version.
2. LIVE stream feature will consume your **Cellular Data**, make sure you have enough Cellular Data in your data plan.
3. LIVE stream quality is depending on the local **4G or 5G network speed**.

FIFISH App, Features, HDMI Box

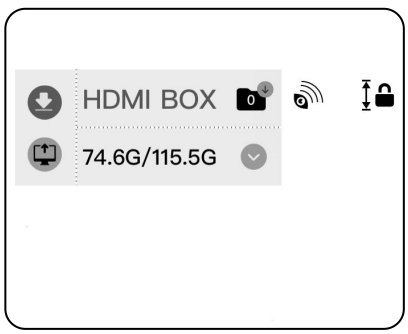
HDMI Box 2.0, Download to Flash Drive

- HDMI Box 2.0 also capable to download the original resolution video from ROV while recording.[1]
- HDMI Box 2.0 will enable to display on a HDTV or transmitter for TV shows.

1. Connect HDMI Box, and Insert a flash drive [1, 2]
2. Click the **HDMI** icon HDMI



3. The default is Download Mode, the new video will automatically download to flash/portable drive



NOTE:

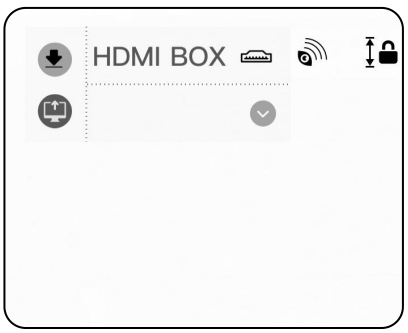
1. Download and Display mode **CANNOT** work at same time, more information check the HMDI Box instructions
2. Format in **FAT32** or **exFAT**, read and write speed **100 MB/s** or higher, **USB 3.0**
3. Flash drive storage **128 / 256 / 512 GB**, portable drive **1 / 2 TB**

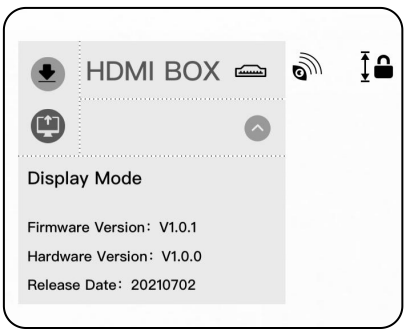
FIFISH App, Features, HDMI Box

HDMI Box 2.0, HDMI Output

- HDMI Box 2.0 will enable to stream to a HDTV or transmitter for TV shows. [1]

1. Connect to the HDMI Display or stream transmitter broadcasting devices
2. Click the icon to active **Display Mode**





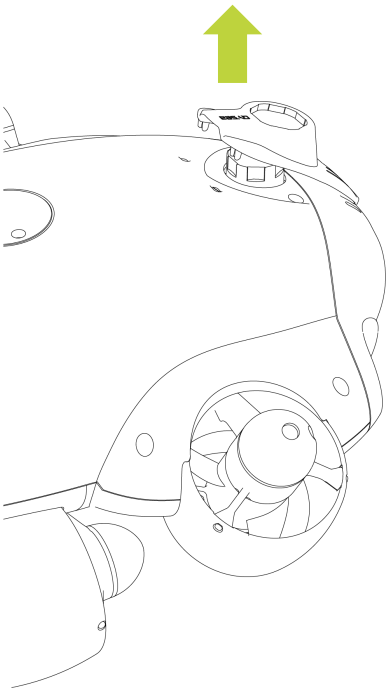
NOTE:

1. Download and Display mode **CANNOT** work at same time, more information check the HMDI Box instructions
2. The default resolution is **1080P 60fps** when HDMI Box is on. (PLEASE DO NOT CHANGE THE RESOLUTION ON FIFISH APP)
3. The HDMI Output latency is about 500 ms

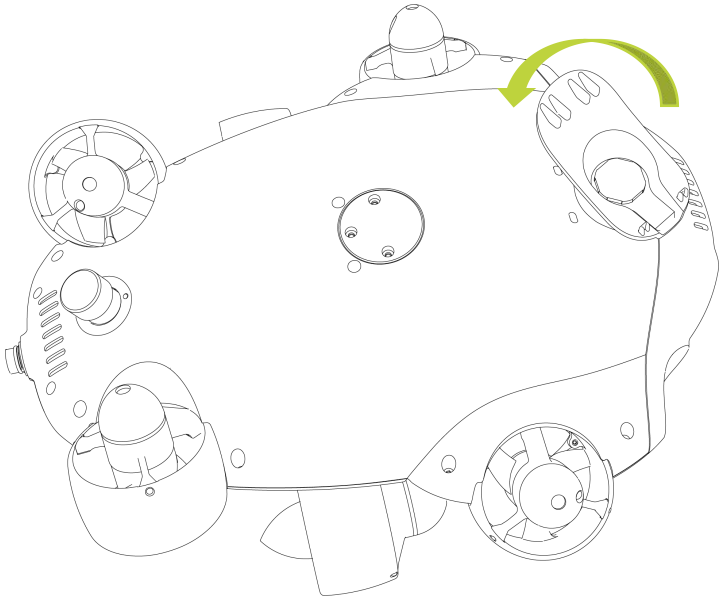
After-Dive

MicroSD Protective Cap Removal

1. Remove the protective cover from the SD card protective cap[a].
2. Attach the protective cover to the SD card protective cap, then turn counterclockwise to loosen the cap and remove the SD card[b].



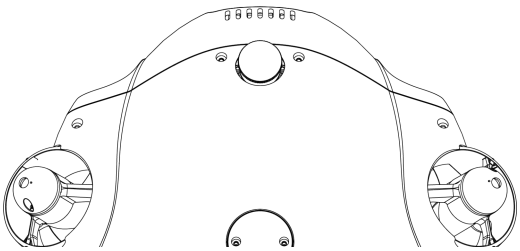
a

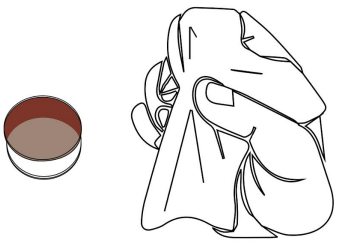


b

MicroSD Protective Cap Maintenance

1. Keep the protective cap clean and dry.
2. Apply a thin layer of grease to the interior slot (Red area).

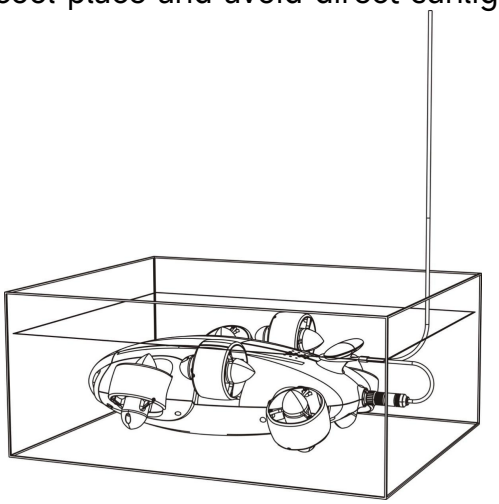




After-Dive

Motors Maintenance (After Every Dive)

1. Connect the RC to V6 Expert and open the FIFISH App (see Hardware Connection section, in Quick Start Guide).
2. Make sure every motor is immersed inside fresh water, see the picture (vertical soaking in bucket will have same results).
3. Open FIFISH App, homepage, Click "Help" on the bottom right corner. Click "Maintain/Thrusters", then press "Start". All motors will rotate slowly.
4. In about 10 mins this cleaning program will stop.
5. Air dry V6 Expert in the cool place and avoid direct sunlight.



Battery Maintenance

1. Keep 50% to 60% battery level before long term storage.
2. Charge to full once every 90 days.
3. If you haven't used FIFISH V6 EXPERT for more than 30 days, you need to use a charger to activate it.

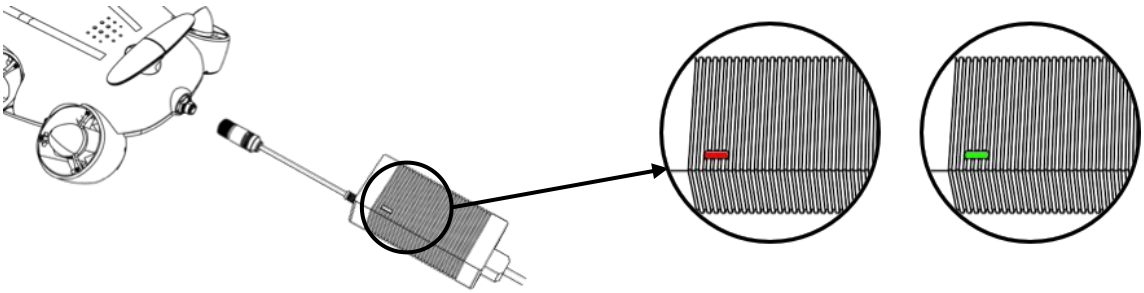
Camera Firmware Upgrade

1. Please ensure that the SD card is inserted in the ROV before performing the camera firmware upgrade to avoid failure.

After-Dive

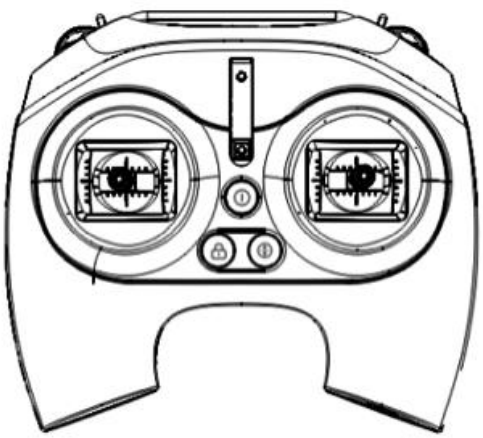
ROV Charging

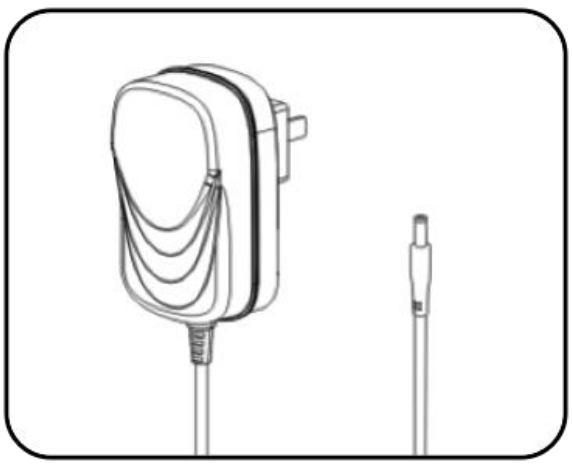
RED LED indicator illuminates while charging and **GREEN** LED indicator illuminates while fully charged.

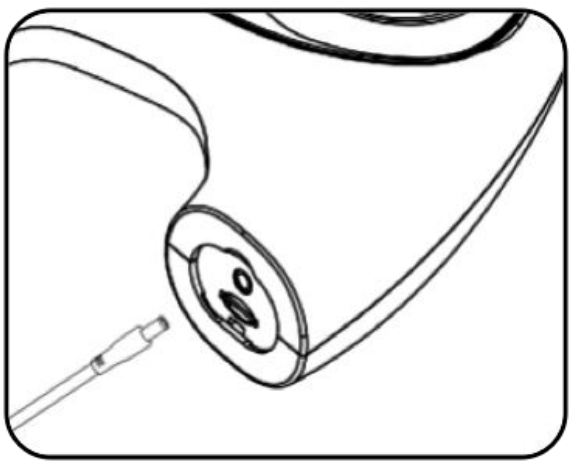


RC Charging

Flashing ON/OFF button, RC is charging
White steady ON/OFF button, RC is fully charged.







Specifications

ROV

Dimension	383 mm × 331 mm × 143 mm	15 in × 13 in × 5 5/8 in
Weight	4.6 kg	10 1/8 lbs
Depth Rating	100 meters	328 feet
Speed	3.0 Knots (1.5 m/s), max speed in still water	
Thrusters	Q-Motor Tech × 6	4 × Vector + 2 × Horizontal
Maneuverability	6 DoF (Degree of Freedom)	
Moving	Sway	Left / Right
	Surge	Forward / Backward
	Heave	Up / Down
Rotation	360° in Pitch, Yaw and Roll *	
Posture Lock™	± 1.0° accuracy	Either in static or moving
Depth Lock™	± 0.01 m accuracy	Keep ROV suspending
Operating Temperature	-10°C to - 60°C	14°F to 140°F
Battery	1.5 hours run time when against 1 m/s current 6.0 hours run time in still water	
	14,400 mAh / 155.52 Wh	Rated Capacity
	1 Hour Quick Charge (90%)	
	Panasonic 21700 Li-ion	

MicroSD Card requirement

Read / Write Speed	80 MB/s or up (Write)	
Capability	64/128/256/512 GB	
Format	exFAT	
Recommendations	SanDisk (Ultra/Extreme/Extreme Pro) or Samsung, Kingston, Toshiba's microSD card with similar speed	

Q-Interface

Port Number	1 port
Material	316 Stainless Steel
Output Voltage and Current	9.0 ~ 12.0 V, 2.5 A max
Network Bandwidth	100 Mbps

Specifications

Camera

Image Sensor	1/2.3”	CMOS
Pixels	12 Mega Pixels	Effective Pixels
ISO Range	100-6,400	Auto / Manual
Lens	166	Filed of View (in air)
	f/2.5	Aperture
	0.3 m	Minimum Focusing Distance
Shutter Speed	5 to 1/5000 second	Auto / Manual (Electronic)
Burst Shooting	1 / 3 / 5 / 10 / 15	Frames
WB (White Balance)	2500 to 10000 K	Auto / Manual
EV (Exposure Compensation)	- 3.0 ~ + 3.0 EV	
Video Resolution	4K UHD	25/30 fps
	1080P FHD	25/30/50/60/100/120 fps
	720P HD	25/30/50/60/100/120/200/240 fps
Video Encode	H.264	
Stabilization	EIS (Electronic Image Stabilization)	
Photo Resolution	4000 × 3000	
Photo Format	JPEG, DNG	
Color System	NTSC and PAL	
Storage microSD	64/128/256/512 GB	Standard Lexar 128GB

LED Light

Brightness	6,000 lumens	
CCT (Correlated Color Temp.)	5,500 K	
Beam Angle	120°	
Dimming	OFF, 1, and 2	

Specifications

Tether and Spool

Tether Length	100 meters (Standard Package)	328 feet
Tether Diameter	4.0 mm	$^{3}/_{16}$ inch
Breaking Force	100 kgf	220 lbsf
Spool Dimension	238 mm × 213 mm × 205 mm	$9\,^{3}/_{8}$ inch × $8\,^{3}/_{8}$ inch × $8\,^{1}/_{16}$ inch
Spool Weight	2.08 kg	4 lbs 9 ounces

Remote Controller (RC)

Wireless	5 GHz Wi-Fi 11 a,n, ac
Battery Life	Up to 4 hours
microSD Card Slot	microSD card format in FAT32 or exFAT (≦128GB), class 10 or higher write and read speed.
miniUSB Port Bandwidth	100 Mbps

Charger

ROV	100-240 V, 50/60 Hz, 3.0 A	Max Input
	12.6 V ⎓ 10.0 A	Output
RC	100-240 V, 50/60 Hz, 0.5A	MAX Input
	5.0 V ⎓ 3.0 A	Output

Disclaimer

We provide customers with after-sale services, excluding the following circumstances,

- Crashes damage caused by non-manufacturing factors, including but not limited to, pilot errors.
- Damage caused by unauthorized modification, disassembly, or shell opening not in accordance with official instructions or manuals.
- Damage caused by improper installation, incorrect use, or operation not in accordance with official instructions or manuals.
- Damage caused by a non-authorized service provider.
- Damage caused by unauthorized modification of circuits and mismatch or misuse of the battery and charger.
- Damage caused by dives which do not follow instruction and manual recommendations.
- Damage caused by operation in bad water conditions (i.e. strong currents, huge waves, etc.)
- Damage caused by operating the product in an environment with electromagnetic interference (i.e. in mining areas or close to radio transmission towers, caves, muddy condition, radiations, tunnels, etc.).
- Damage caused by operating the product in an environment suffering from interference from other wireless devices (i.e. transmitter, video-downlink, Wi-Fi signals, etc.).
- Damage caused by a forced dive when components have aged or been damaged.
- Damage caused by reliability or compatibility issues when using unauthorized third-party parts.
- Damage caused by operating the unit with a low-charged or defective battery.
- Uninterrupted or error-free operation of a product.
- Loss of, or damage to, your data by a product.
- Any software programs, whether provided with the product or installed subsequently.
- Failure of, or damage caused by, any third-party products, including those that QYSEA may provide or integrate into the QYSEA product at your request.
- Damage resulting from any non-QYSEA technical or other support, such as assistance with "how-to" questions or inaccurate product set-up, installation, and firmware upgrade.
- Damage caused by operating the ROV in the sensitive zone (military, natural resource protection zoning, marine conservation and ocean conservation, etc.)
- Damage caused by unpredictable factors (current, cave collapse, swallow by animal, etc.)
- Products or parts with an altered identification label or from which the identification label has been removed.
- The presence of water droplets or water stains on the ROV may be due to the running tests in water performed at our factory. This will not affect the features and function of FIFISH underwater robot.
- Please check the QYSEA After-sales Policy published by official website (https://www.qysea.com/support/after-sales/) for more detail.

For more information, please check our website for tuition videos, or read FAQ in FIFISH APP/help/FAQ.

For latest version of use guide/manuals and other instructions, check on our website.

https://www.qysea.com/support/user-manual/