AheadX™

ASHIL

AheadX Simulator Hardware In the Loop

Installation Manual V1.0

Version Information

Date	Version	Author	Amendment Record
2018/01/18	V1.0	AheadX	Creat the document

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2. Did not assemble or handle product by the correct guide of the manual.

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5. The damage caused when the aircraft is in the magnetic interference areas, the radio interference area, no flight zones stipulated by the government or the driver's vision is in the backlight, obstructed by obstacles, and other unsuitable conditions.

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9. Losses caused by using any of our company's software or hardware products and related manuals without official permissions.

10. Other losses which are not within the responsibility of AheadX.

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Reading tips

Advice：Reference information

Tips：Information that may need

Attention：Need to pay attention to this situation

Warning：Requirements must strictly enforce

Search keyword

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◆ All the documents have been carefully checked. The relevant information of the products is subject to the latest release version.

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1 Product introduction

ASHIL(AheadX Simulator Hardware In the Loop) is a complete set of system for flight simulation, enabling manual and autonomous flight simulations, it can be widely used in UAV training, teaching and other occasions

The system is equipped with excellent flight simulation platform, Flight maps have airports around the world, with high picture quality, rich details, it can simulate a variety of weather conditions, suitable for testing various aircraft performance (such as wind resistance, etc).

Rich aircraft model can be applied to many kinds of simulation needs, including multi-rotor, fixed-wing, quad-plane etc, and the accurate physical model creates a real flight experience. Whether remote control flight or advanced adjusting parameters, the users can fully feel its exquisite details.

The System contains many flight modes, which can be applied to different-stage users' training, from novice pilots to experienced professional pilots, they can find their own ways to flight training and rapidly improve their professional skills to prepare for the next flight mission.

The installation and use are extremely simple, plug and play, without any tedious configurations. And the software design is simple, only need a few steps, users can quickly experience an autonomous flight.

2 Features and applications

2.1 Features

- detailed physical plane model, including quad-plane, fixed wing, multi-rotor, helicopter, etc.

- realistic physical special effects such as vibration, stall, spiral, crash, etc.

- a variety of flight modes, including visual remote control flying, beyond visual range autonomous flight, etc, for each phase of the unmanned aerial vehicle (uav) training task.

- strong flight control algorithms, perfectly fit various models' automatic take-off and landing, fly mission, emergency protection, etc.

- detailed flight environment simulation, covering the global airports, flght is in a real world.

- can simulate the wind, thunder, rain, snow, etc weather effects, support random weather.

- simple to install and use, only needs several steps to experience the fun of flight.

2.2 Applications

- personal learning: improve the ability of remote control flying, advanced parameter adjustment, make you become a flight master.

- university application: unmanned aerial vehicle (uav) teaching, through simulation training to deepen the students' understanding of the uav principle and improve their learning interests.

- training institutions: visual and beyond visual flight training can rapidly improve the students' flight ability.

3 Technical Parameters

3.1 Reference index

Project	Parameter	REMARK
Weight	430g	--
Size	134*127.5*42mm	--
Vcc	DC 4.5-28V	--
Working Temperature	-10-65℃	--
Power Interface	DC plug（5.5*2.1mm）	--
Equipment Interface	DB9，3pin molex，4pin molex	Serial Port

3.2 Size View
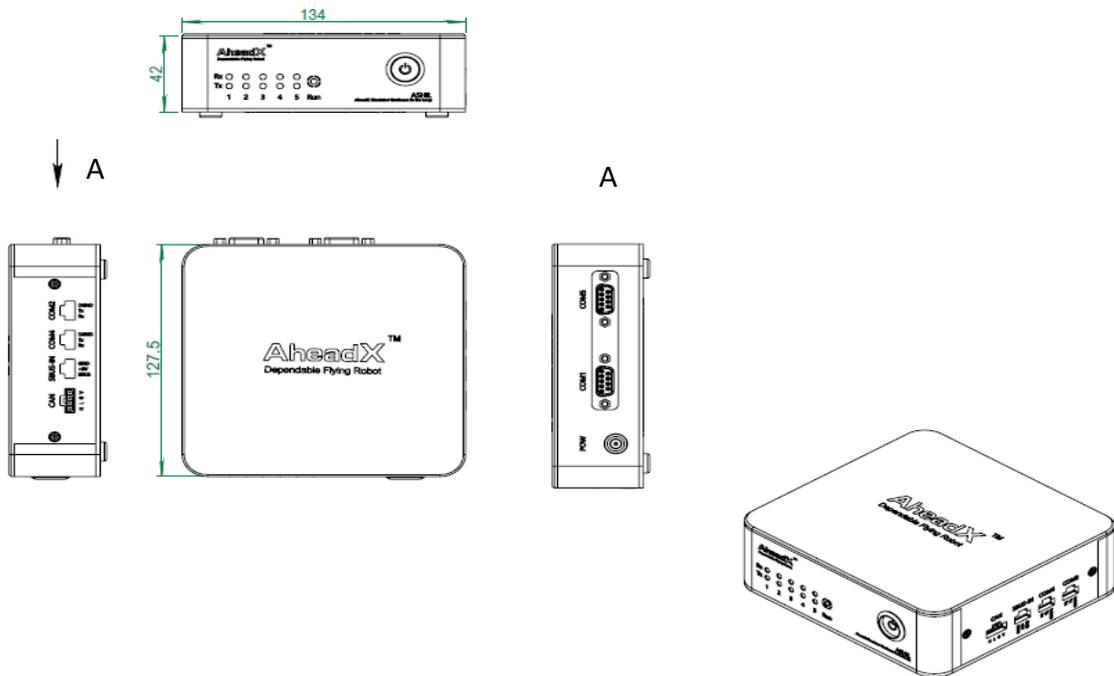
3.3 Plug Defination

PORT	INSTRUCTION
POWER	Power Port
COM1	RS232 serial port, connected by RS232-to-USB wire
COM2	RS232 serial port
COM4	RS232 serial port
COM5	RS232 serial port, connected by RS232-to-USB wire
SBUSIN	connected to the matching remote-controller or SBUS receiver, receive signals
CAN	CAN Port

3.4 Indicator Light

PORT	说明
Rx	Blink blue when receiving Data
Tx	Blink green when transmitting Data
Run	Equipment working condition indicator

4 ASHIL System Installation

4.1 Access Device

Equipment's COM1 (right side of picture) is connected to the AheadX Space ground station, and COM5 to ASHIL Console software. It is recommended to use Z-TEC 232-to-USB serial cable which you need to install the matching drive.

It is better to work with dual monitor display. Advised PC configuration: internal memory 4G and above, independent video card 512M memory and above, CPU main frequency 2.5GHz and above.

The Xplane software needs to run at a stable frame rate (around 60 frames). it may cause abnormal flight control if it's too high or too low. It is recommended that users open vertical sync in the video card control panel to get a better flight experience.

Remark: It is recommended to lower the special effects configuration to enhance the frame rate.

4.2 Software installation and configuration

AheadX Simulator Software includes the ASHIL Console simulation software, Xplane flight simulation platform (please purchase and install the official authorized software), AheadX Space ground station and AheadX Master.

4.2.1   ASHIL Console software installation

Please install the Xplane platform before installing the console software, otherwise the installation will fail. Double click the ASHIL Console setup.exe to run the installation program, and complete the installation by the guidance.
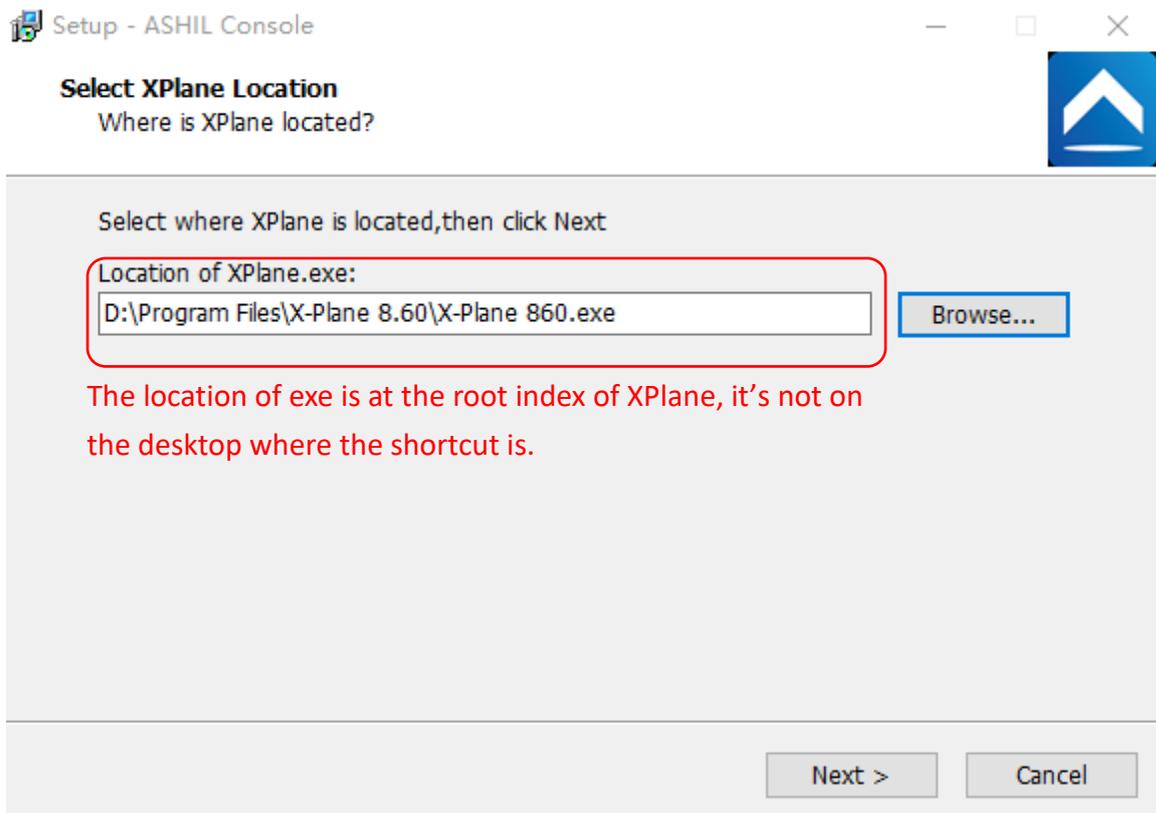
After installation, run the console software. The main interface is shown as follows:
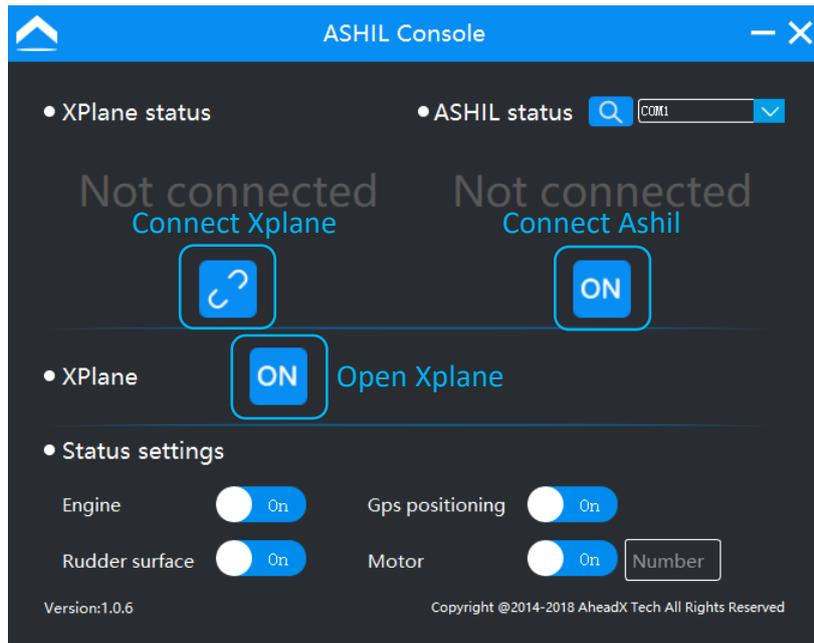
Status settings instruction:

Engine: Click to make Fixed-wing engine damaged (only for oil motor), reopen the model to escape from the damage(for fixed-wing and quad-plane).

Gps positioning: Click to make GPS signal miss, click again to be OK.

Rudder surface: Click to make rudder surface fail, click again to be OK (for fixed-wing and quad-plane).

Motor: Write the motor number and click to make the motor damaged, click again to be OK (for multi-rotor and quad-plane).

Ensure that the device is properly connected and powered on, then click the ON button (at the right of 'XPlane') to open the XPlane software (ensure that the XPlane optical drive file has been loaded). After the software is running normally, click the blue button (on the left top) to connect XPlane. Search and choose the matching port name to COM5 in the upper right corner. Then click the button under it to connect the hardware device. With successful connection, the window is shown as follows:
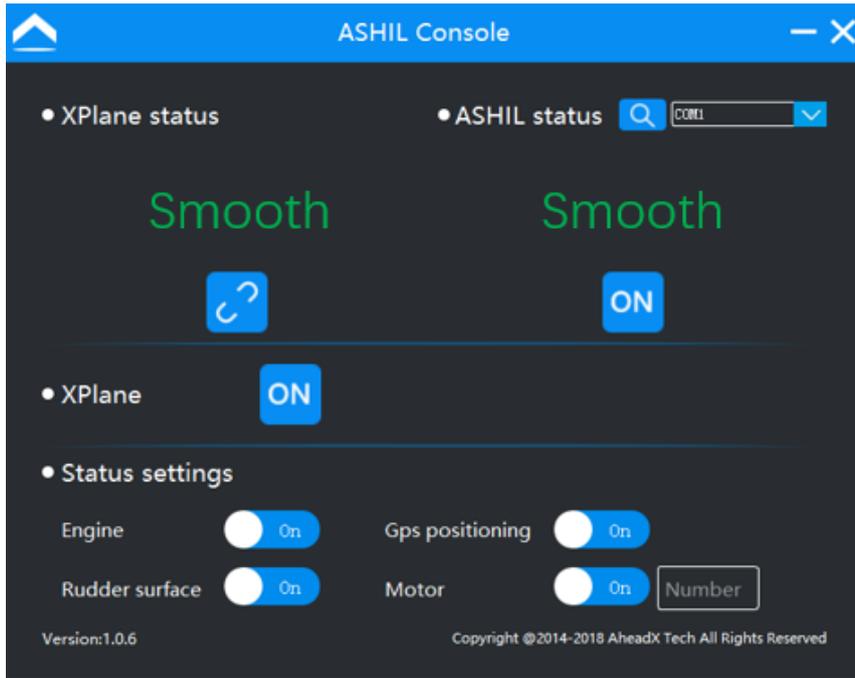
At this time, the Xplane main interface will also display the AheadX flag.

If in the use process, Xplane software's installation location was changed, please open the ASHIL console software, and click the ON button in the red box, then choose the new installation location. Select Yes and reselect the 'Xplane.exe' file at XPlane's root directory. After these steps, click ON again to run XPlane.
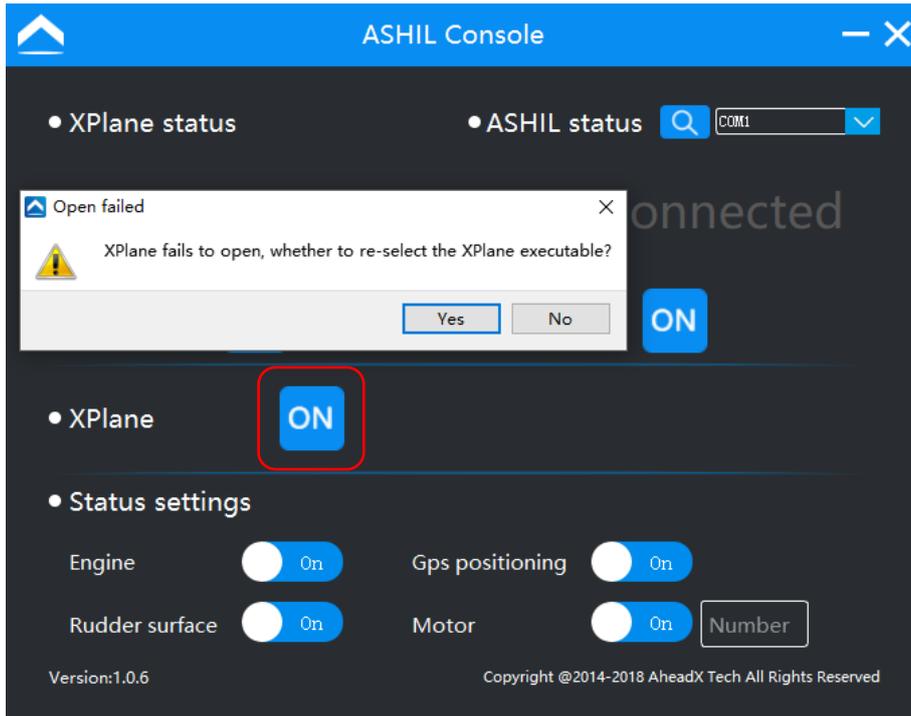
4.2.2   AheadX Space and AheadX Master installation and activation

4.2.2.1   AheadX Space installation and activation

Double click to run 'AheadX Space Setup exe' installer, execute installation wizard, (recommend not to install at system disk). After installation, open the software and the main interface is as follow:
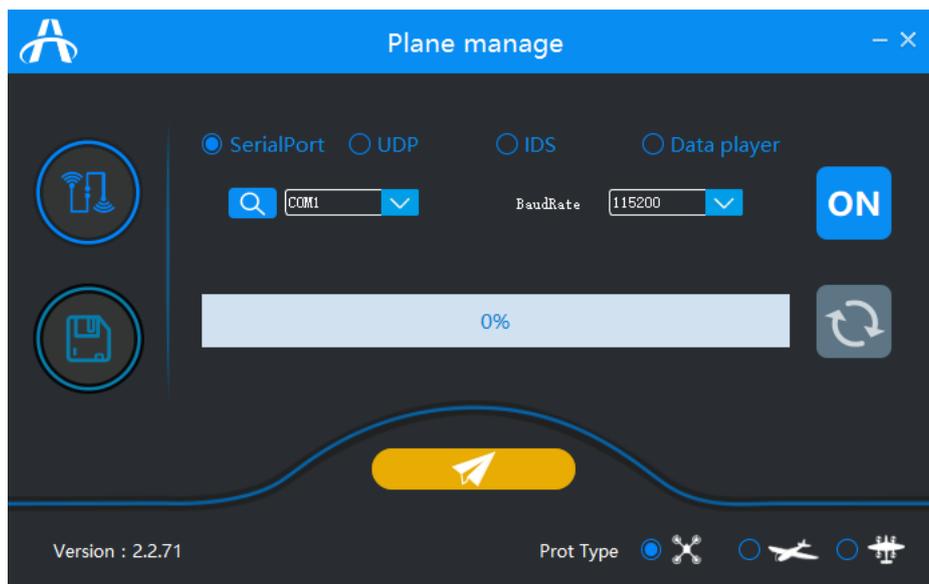
Search and select the flight control communication serial port (correspond to equipment's COM1), click ON button on the right. Then the device would automatically identify the plane type. The button below will turn blue and clickable if connected successfully, click the button to synchronize

flight control parameters to the ground station, then click the orange button to enter the station.

4.2.2.2   AheadX Master installation and activation

Double-clicked AheadX Master setup.exe program installation, run the installation wizard, (recommend not to install at system disk), after the installation is complete and running for the first time, file "AheadX.sn" will be generated at the root directory, please contact the AheadX Inc. customer service to obtain the key.to activate the software.

5 Firmware Update

For better user experience, the ASHIL supports online upgrading service. If you want to experience this service, please install a special firmware upgrade software first.

software installation and use:

double click "ASHIL Update Tool Setup .exe", Install the upgrade software according to the wizard. The main interface is as follow
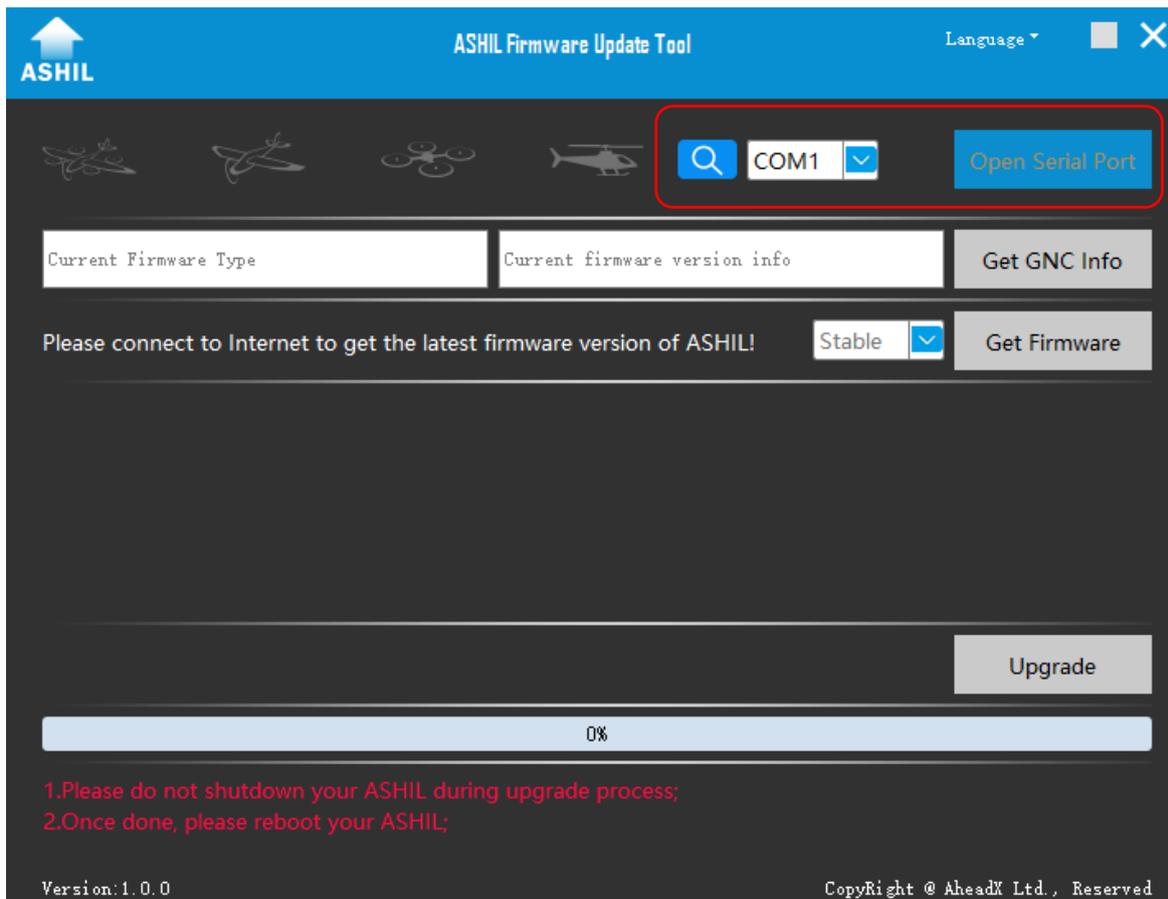
Connect ASHIL COM1 to the computer, open the serial port in the red square as the picture above, read the information after the success of connection. Select the stable version or the developed version and click "Get Firmware", then click "upgrade", after the progress bar completes, restart the device. Please don't cut off the electricity during the process.

If some unforeseen circumstances make the firmware upgrade fail, open "Enforcement.exe" at the root directory of the upgrade software. Connect ASHIL COM1 to computer, select the device type (must choose one, otherwise cannot obtain the firmware). Then select the developed version or the stable version and access to the latest firmware, click "upgrade", after the upgrade please restart the

device. This upgrade tool is only used to repair after the failure of the upgrade.
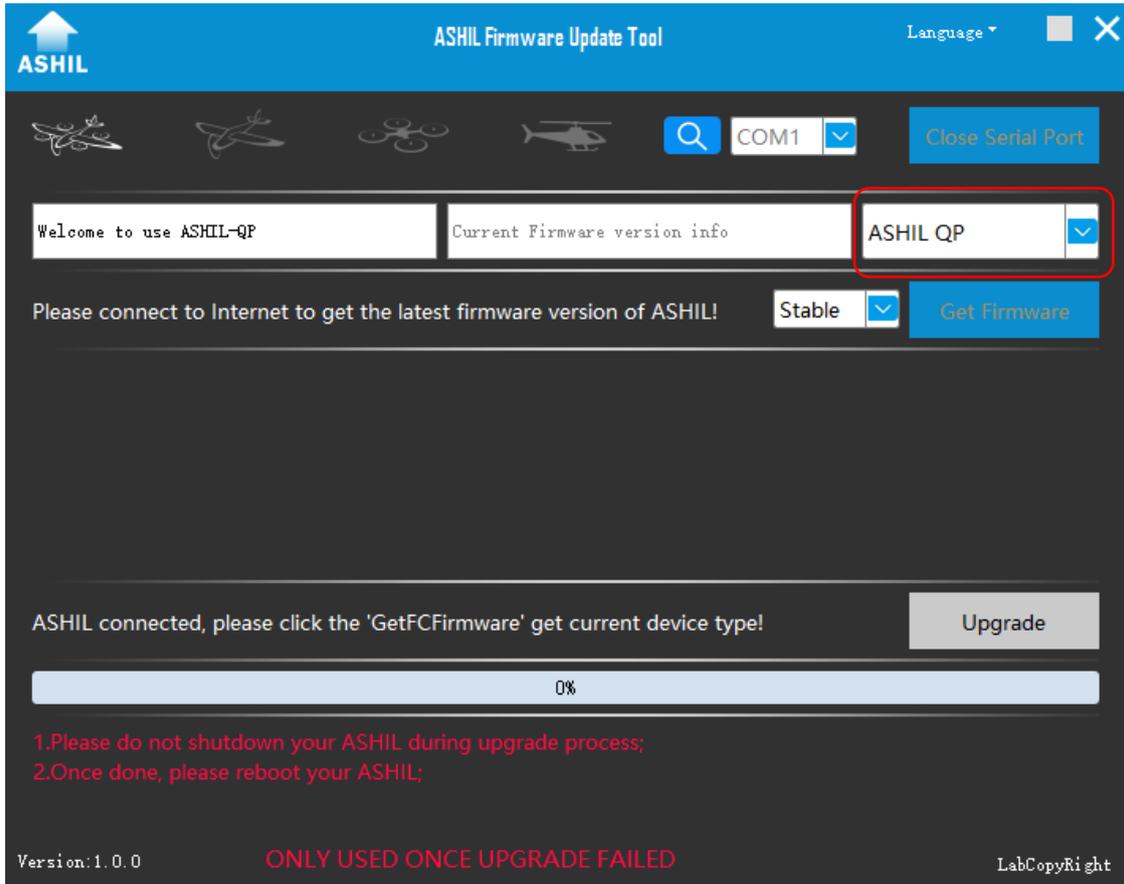
6 After-sales service policy

1. The products of our company are in accordance with the national 'three guarantee' , which provide free maintenance, replacement and return service for products that meet the warranty conditions (only products purchased in mainland China).

2. Within 7 days from the date of sale, the equipment performance problem can be exchanged or returned. And we will provide free maintenance for one year.

The following conditions shall be met when exchenging or returning:

Be able to provide effective purchase certificate, document and number;

The machine serial number, factory label and other signs are not be torned up or changed;

There is no man-made failure.

Do not belong to the replacement and free

The product serial number bar code or model does not conform to the product itself;

The product has been disassembled and transformed by the non-official authorized personnel;

Damage caused by the third party components which has not been recommended by our company;

The man-made impact, burnout, water immersion, freezing, mechanical damage, and damage etc.;

Failure or damage not caused by product design, technology, manufacturing, quality;

The matching U disk and other accessories.

One year warranty period

From the beginning of the day of purchase, a year (including the day of maturity), is the warranty period for the goods.

Failure caused by the quality problem of the commodity, it can be repaired free, and it will cause impact, burnout, water immersion, freezing, mechanical damage and breakage caused by the human quality problems.

The time limit for free software upgrading: life long free.

The cost of mailing should be provided by users during the warranty period (Our company will bear the cost of the return).

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The following items are included in the one year warranty:

Warranty item		service content	service standard
technical support	400 hotline	The technical support engineers provide professional artificial service, and is responsible for solving difficult problems and faults.	7×8 hours
	Remote assistance	Using remote assistance methods to help customers to debug, solve faults, etc.	5×8 hours
	Customer service mailbox	Various kinds of manual services are provided to solve various problems such as customer product application, failure declaration, demand feedback, business and so on. Customers can choose their own service according to their habits.	7×8 hours
	Wechat、QQ		

Beyond the warranty period, our company provide conpensable maintenance services.

For after-sale issues that do not belong to the category of return or free warranty, customers need to pay for repairs, including maintenance costs, replacement parts costs and express fees.

The above principle of exchange and warranty must provide effective warranty documents while enjoying the service, otherwise it will not be dealt with.

The ultimate interpretation of this warranty is reserved by AheadX.