

SKYE Airspeed Sensor

User Manual



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Disclaimer

Please read the manual carefully before using it to make sure that you can use it correctly and safely. You need to install and use this product in strict accordance with the instructions. CUAV is not liable for any loss due to improper use. This manual is only used as a user guide. The company reserves the right to modify and improve the product details and instructions. The relevant data shall be subject to the data provided by our staff. CUAV does not guarantee the accuracy and reliability of the contents of the document.

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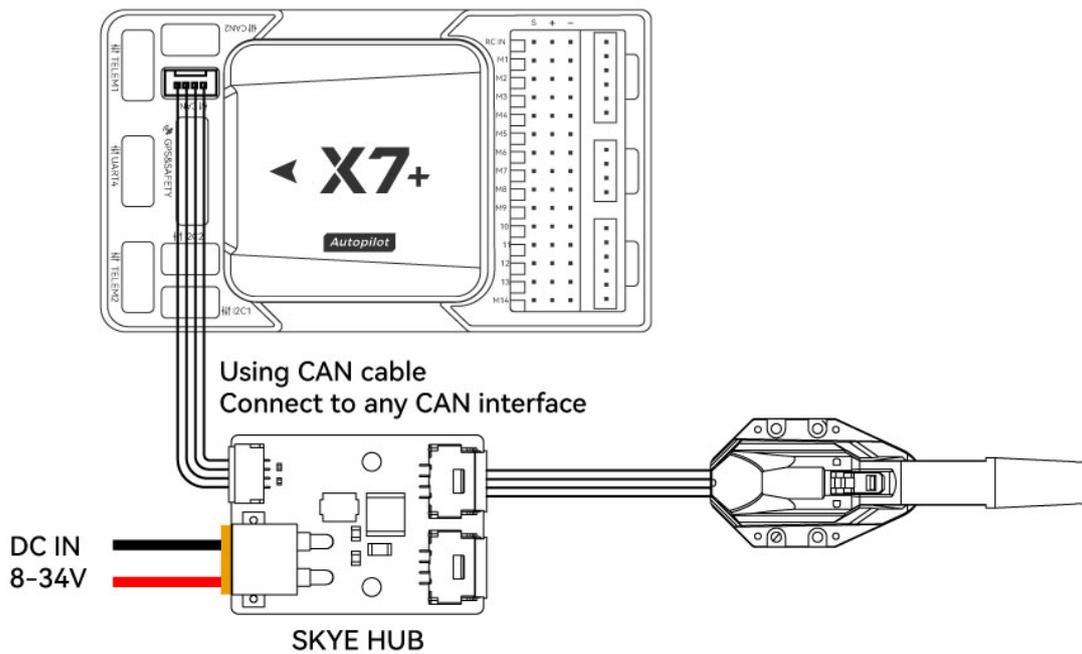
NOTE

- ▶ Please abide by local laws and regulations and do not fly in the no-fly zone.
- ▶ It is forbidden to fly near the airport.
- ▶ It is forbidden to fly in sensitive areas such as crowded places, military and administrative institutions, traffic roads, etc.
- ▶ Do not fly in strong wind.

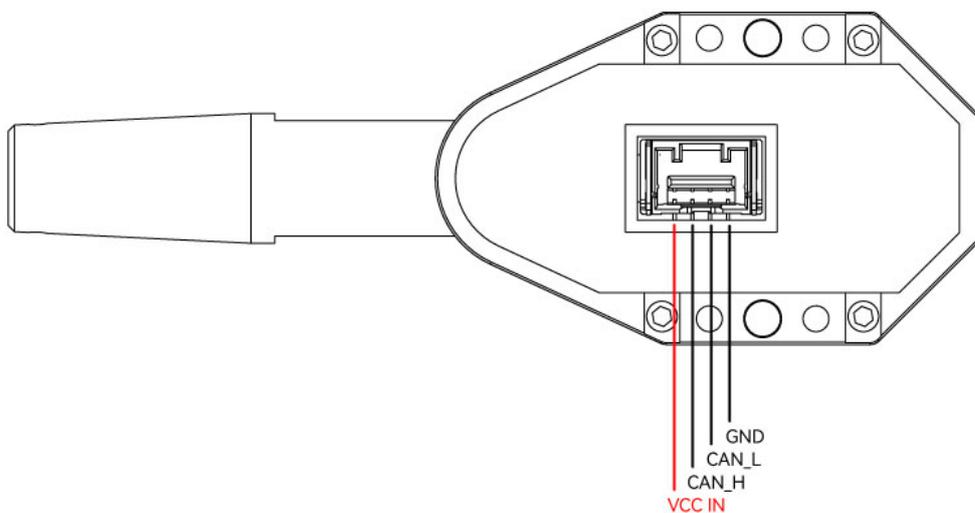
Fast wiring

- Connect the SKYE HUB to the flight controller using the CAN cable;
- connect SKYE HUB to 8~34V power supply (3~8s battery) use XT30 power cable;
- Connect the SKYE Smart Airspeed to the SKYE HUB using the airspeed cable;

SKYE Airspeed Sensor Wiring Diagram



Pinouts



Number	Left to Right
1	VCC
2	CAN_H
3	CAN_L
4	GND

Install to Plane/VTOL

In order to achieve IP44 protection level, it needs to be installed according to the following requirements. For conventional Plane/VTOL, the following installation methods are recommended.

- The SKYE is mounted on the bottom of the wing, as shown in the picture below



Note: The rotation of the propeller will cause airflow disturbance, which will make the UAV obtain wrong airspeed data. It is forbidden to install the airspeed near the propeller.

Flight controller (ArduPilot firmware) parameter configuration

Run Mission planner>Configuration>All parameter table; set the following parameters and save and restart.

- CAN_P1_DRIVER=1
- CAN_P2_DRIVER=1
- CAN_D1_PROTOCOL=1
- CAN_D2_PROTOCOL=1
- ARSPD_TYPE=8
- ARSPD_USE=1

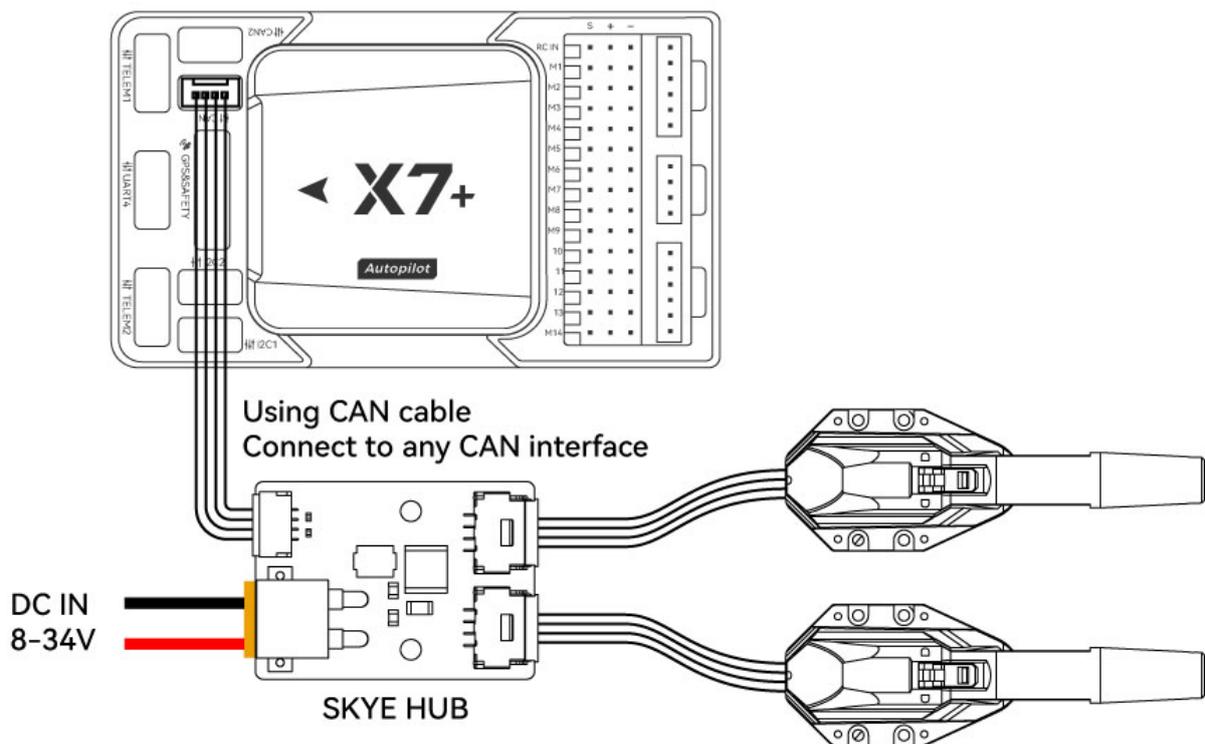
If you use AP4.30 or later firmware, you need to set the following parameters

- `HYGRO_TYPE = 1` (thermometer)

Note: ArduPilot AP4.20 and above firmware supports SKYE smart airspeed meter.

Use dual SKYE

SKYE Airspeed Sensor Wiring Diagram



You also need to set the following parameters

`ARSPD2_USE=1`

`EK3_AFFINITY=8`

`HYGRO2_TYPE = 1` (thermometer, for AP4.30 and above firmware)

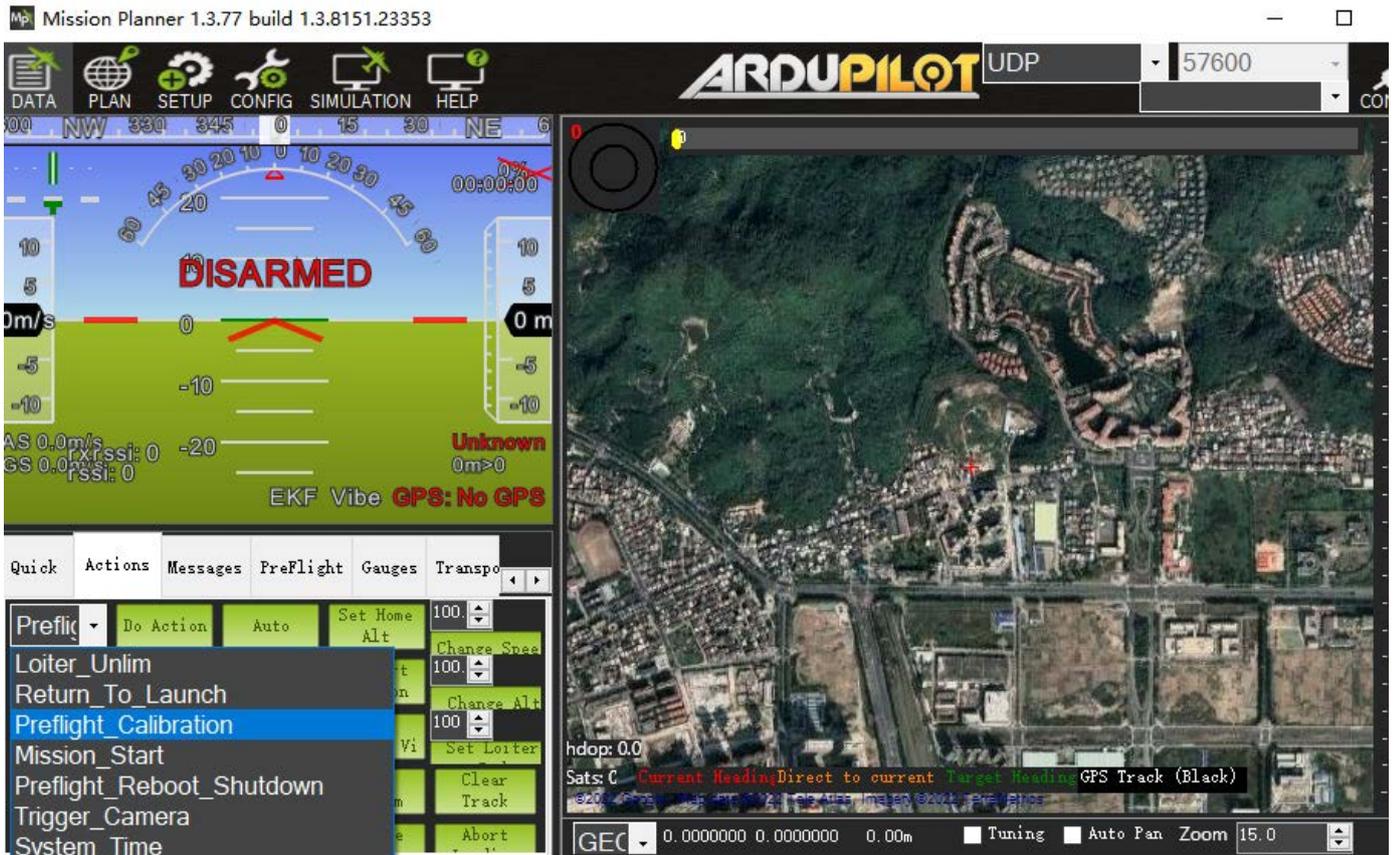
Airspeed offset calibration

After the SKYE smart airspeed meter is started, the temperature compensation function is automatically activated. For better performance, please wait for the device to heat up after starting it (the time is about 5

minutes). During the heating process, the sensor will have a certain airspeed offset. When there is no wind, the airspeed display is greater than 3m/s, please perform airspeed offset calibration before takeoff.

Method:

- Place the pitot in a windless environment.
- Run Mission planner > Data > Actions
- Select "Preflight Calibration" in the first checkbox; click the "Do Action" button on the right

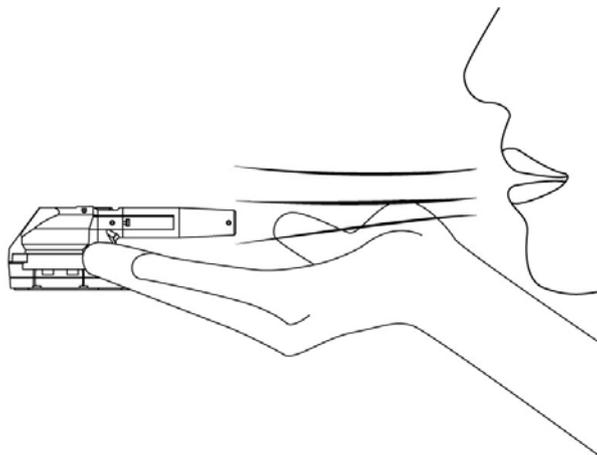


Preflight Airspeed Check

- Please place the pitot tube in a windless environment to ensure that the airspeed value jumps within the range of 0~3m/s.



- Hold the pitot tube with your hand, blow air into the pitot tube, and check that the airspeed value can change according to the airflow speed, which means the inspection is completed.



Airspeed Calibration

The airspeed ratio of different installation positions and methods will be different, and the airspeed calibration needs to be performed on the first flight;

Set the flight controller parameter ARSPD_AUTOLOCAL to 1 to enable automatic calibration.

Start calibration For VTOL (choose one of the following two methods):

1. Take off in QStabilize or QLoiter mode and convert to FBWA (self-stabilizing A mode) to control the drone to fly around 5 circles. After the ground station message bar prompts that the calibration is complete, perform landing. After the calibration is completed, set ARSPD_AUTOLOCAL to 0.
2. If you do not fly in FBWA mode, you can fly with the airspeed meter enabled but the flight controller does not depend on the airspeed but on the airspeed (ARSPD_USE=1; ARSPD_TYPE=8; do not fly in a high wind environment This operation); use Loiter mode to circle about 5 circles after takeoff, the ground station message bar prompts that after calibration is completed, perform landing, and set ARSPD_AUTOLOCAL to 0 after calibration is completed

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ARSPD_TYPE           // Airspeed Type

ARSPD_USB            // Whether to use airspeed data (0=disable; 1=use)

ARSPD_AUTOLOCAL     // Auto-calibrate airspeed (0=disable, 1=enable auto-calibration)

ARSPD_BUS           // Airspeed on that I2C BUS (SKYE no need to set)

ARSPD_FBW_MAX       // Maximum flight airspeed (m/s), use the default without special requirements

ARSPD_FBW_MIN       //Minimum flight airspeed (m/s), use the default without special requirements

ARSPD_OFFSET        // Airspeed offset value (do not need to be modified)

ARSPD_PIN           // Airspeed Pin

ARSPD_PRIMARY       // Primary airspeed sensor

ARSPD_PSI_RANGE     // Sensor PSI (pounds per square inch) range

ARSPD_RATIO         // Airspeed RATIO

ARSPD_SKIP_CAL

ARSPD_TUBE_ORDER    // Rotate static pressure and dynamic pressure

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Maintenance

In order to prevent the accumulation of dust and other foreign objects, which will cause the air inlet of the airspeed sensor to be blocked, please disassemble the maintenance structure casing regularly to clean up the foreign objects in the warehouse; if it is used in dusty places such as deserts and mounds, the frequency of cleaning and cleaning should be increased. frequency.

Parts List

The following accessories list is for reference only, and the purchase of different packages will be different. For details, please refer to the page you purchased.

Number	Article	Amount
1	SKYE smart airspeed	1
2	SKYE HUB	1
3	CAN Data Cable	1
4	XT30 Power Cable	1
5	Airspeed Cable (HUB->SKYE)	1

Product Specification

Item	Remark
CPU	STM32F4
Airspeed	DroneCAN
Heating method (Pitot tube)	Resistive
Airspeed sensor	MS5525
Sensor performance	
Airspeed range	±500km/h
Accuracy	±0.69Pa
Total error band	±2.5%FS
Temperature measurement	-20°C-125°C
Humidity measurement	0-100%
Physical properties	
Pitot tube heating power	32W
Operating Voltage	8-34V
Operating temperature	-20°C±75°C
Size	82.5x30.4x28.2mm
Weight	22g
Protection class	IP44 (correct installation)

More information

CUAV official website: www.cuav.net

For more usage and machine assembly guides, please visit the Documentation Center: doc.cuav.net