ISTRA24 mmWave Radar

Product Manual

2022-1-24

List

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.

This product is only a pure hardware component of an experimental unmanned system,.It is only one of the components of unmanned system, and it has high requirements for use mode and compatibility of various components of unmanned system; CUAV only has the obligation to provide after-sales service within the product warranty period, and the company does not guarantee the reliability for any purpose; The company shall not be responsible for the direct, indirect, derivative, accidental injury and other losses or punishment caused by any reason or under any circumstances.

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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.

Overview

ISTRA24 is a high-performance ultra-small ranging radar for UAV altitude determination..ıt adopts an original antenna design, and through ultra-efficient signal processing algorithms and high-sensitivity real-time signal processing methods based on time domain, frequency domain and phase synthesis, it can greatly reduce the physical size of the radar module and facilitate the integration of the radar module into the UAV. In the fuselage structure, new possibilities are opened up for the UAV industry. This millimeter-wave ranging radar can achieve accurate altitude measurement in the height range of 0.2 to 50m, providing great convenience for drones to maintain altitude and follow terrain.

Main application: long-endurance UAVs such as VTOL, especially landing in different places; can also be used for precise altitude maintenance and terrain following flight

Technical Parameters

Item	Parameter
Transmitting frequency	24.0~24.25GHz
Transmitting power (EIRP)	20dBm
System	Frequency Modulated Continuous Wave
Hardware interface	URAT-TTL
Operating Voltage	4.5~5.5V(recommend: 5V)
Working current	200~275mA; Typical value: 220Ma@5V
Altitude-fixing range	0.2~50m
Update rate	50Hz
Transmit antenna	Tilt angle: 20° Azimuthal angle: 31° sidelobe: -19dB
Receive antenna	Tilt angle: 20° Azimuthal angle: 31° sidelobe: -19dB
Compatible flight controller firmware	ArduPilot
Operating temperature	-40~80℃
Weight	63.8g
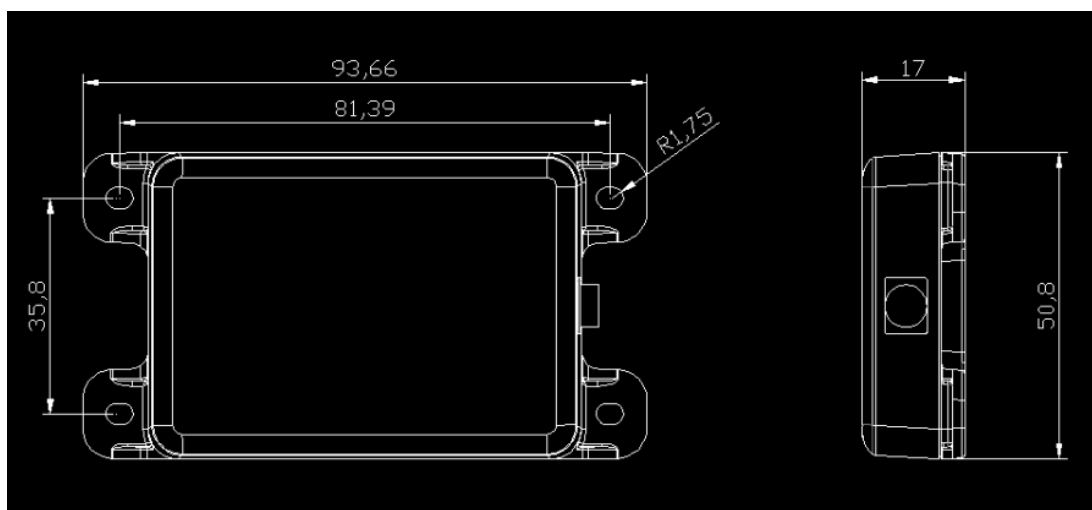
Pinouts

STRA24 is factory adapted to V5+/X7 and other flight controller pin definitions; no need to modify the
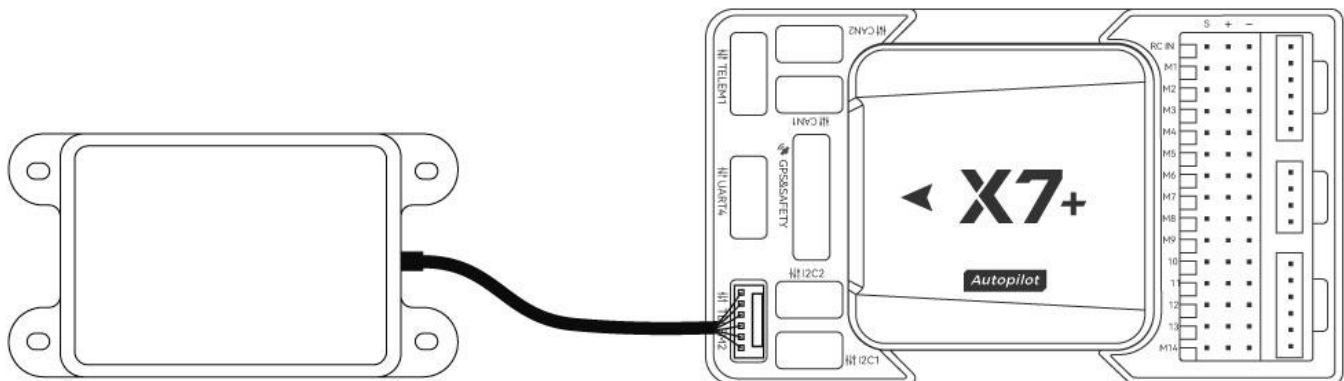
definition; if it is used on other flight controllers, please check the line sequence first; incorrect wiring will cause irreversible damage to the module.

Serial number	Pin	Wire color	Remark
1	5V+	Red	
2	RX	White	
3	TX	Blue	
4	CAN_H	Yellow	Not yet supported
5	CAN_L	Green	Not yet supported
6	GND	Black	

Connect to flight controller

Take X7+ as an example:

NOTE: ISTRA24 can be connected to any interface of TELEM1/TELEM2/UART4.

Set flight controller parameters

Open Mission planner>Configuration>All Parameter Table; set the following parameters and save and restart

- EK2_ALT_SOURCE=1 OR EK3_RNG_USE_HGT=70
- RNGFND1_TYPE=8
- RNGFND1_ORIENT=25
- RNGFND1_MAX_CM=5000
- SERIAL2_BAUD=115200（TELEM2; Can be set to other SERIAL）
- SERIAL2_PROTOCOL=9

View data

Open Mission planner > Flight Data > Quick Preview > Double-click any tab to set Sonarrange to see the radar distance data
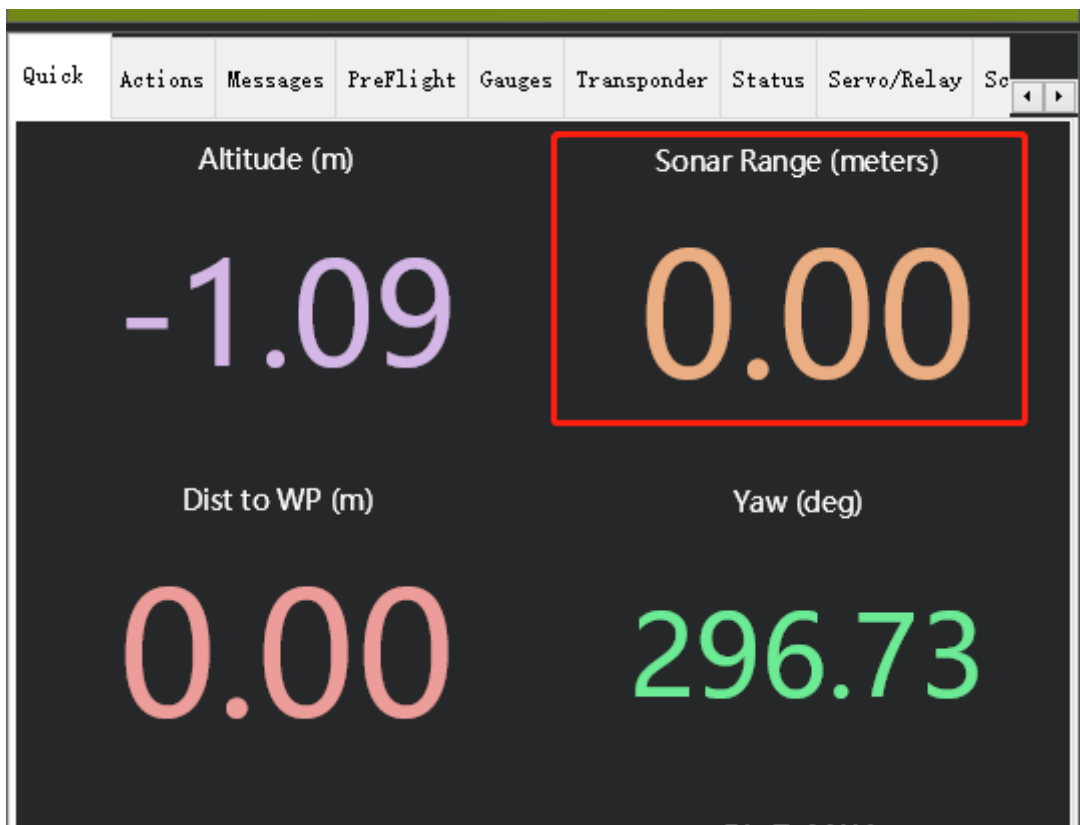
More information

CUAV official website: http://www.cuav.net

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