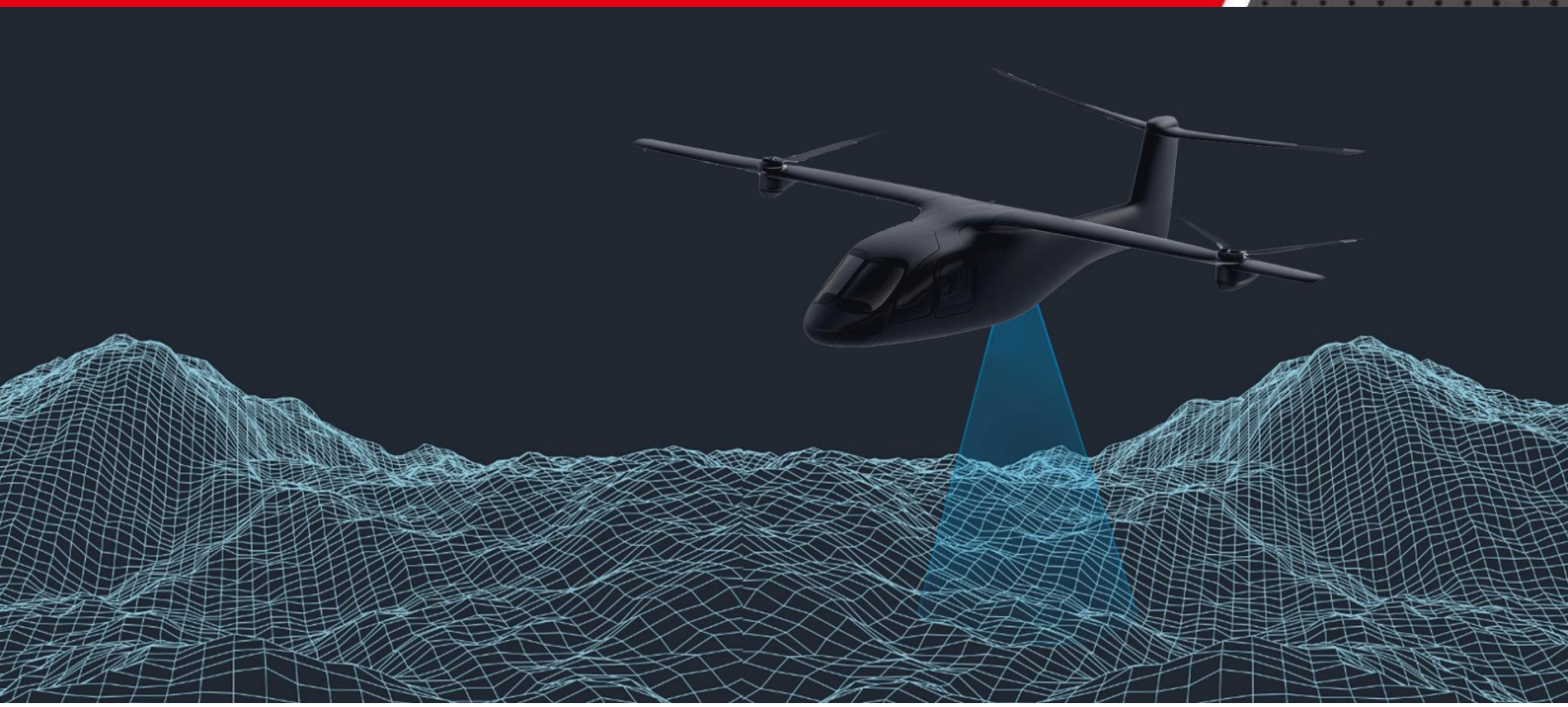
UAM231 UAV Altimeter Millimeter Wave Radar



UAM231 is a mid-to-high-end UAV altimeter millimeter wave radar, using 24GHz-ISM frequency band, which can be widely used in aircraft, Evtol and other fields, such as aircraft landing, UAV vertical guidance. The millimeter wave radar has the advantages of all-weather, high stability, strong ability to imitate the ground and high cost performance. Compared with the altitude information output by GPS, the altitude data output by UAM231 has ground simulation information, which can effectively display the undulation characteristics of the ground and is not limited by the terrain. Compared with the traditional barometer, UAM231 is basically not affected by bad weather such as wind, rain and fog. It can work all day and output stable data. The self-checking function of software and hardware integrated in UAM231 can effectively help customers confirm the correctness of data, further improve security and meet the application of various complex environments.

UAM231

UAM231 UAV Altimeter Millimeter Wave Radar

Product istics character

Accurate, effective and safe

- **Long distance:** linear frequency modulation continuous wave (LFMCW) technology is adopted, the maximum height measurement distance is 1000 m, and the stable detection is 800 m.
- **Small blind area:** the blind area is 0.2m, 2 times higher than that of similar products, and the ranging accuracy reaches centimeter level (± 0.02m), 2 times higher than that of similar products.
- **Data stability:** Static clutter filtering algorithm is used to avoid data fluctuation. After more than one thousand flight reliability tests, it can ensure the stability of radar output data and prevent data jump.

Work 24/7/365

- **All-weather:** All-weather real-time protection is applicable to all kinds of bad weather environment, such as rain, snow, fog and dust, to prevent false alarm and false alarm to the maximum extent.
- **High protection grade:** IP67 protection grade, suitable for high speed, high impact and high vibration environment, suitable for heavy UAV applications, and ensure its stable operation in rain, snow, humidity, salt fog, sandstorm and other environments
- **Anti-interference:** unique coding technology, support frequency hopping processing, anti-multi-signal interference, stable transmission

Safe, reliable and accurate ground imitation

- **Software and hardware self-check:** Support software and hardware self-check function, which can effectively help customers confirm the correctness of data, ensure reliable output, and meet the application of various complex environments.
- **Accurate ground simulation:** Compared with the altitude information output by GPS, the altitude data output by UAM231 has ground simulation information, which can effectively display the undulation characteristics of the ground and is not affected by the terrain environment.
- **Multi-sensor fusion:** The fusion of six-axis gyroscope, accelerometer and magnetometer can give an over-attitude angle warning when the radar is tilted, prompting the customer to adjust the installation direction or flight attitude to ensure the best detection performance.

Multi-interface, small size, low power consumption

- **Multipleinterfaces:** UART/CAN/RS232/RS422/RS485 interfaces are provided to meet the diversified integration needs of customers and realize efficient and convenient system docking.
- **Lightweight and low power consumption:** The weight with a shell is about 200 G, and the power consumption is as low as 1.8 W. The UAV has a small load and a small power load, which ensures that the UAV has a strong endurance after carrying the radar.
- **Small size:** the single board size is reduced to 130 × 70 × 14.5mm, and the size is greatly reduced through the integrated single chip design, which is perfectly suitable for various types and specifications of UAV platforms

Seamless docking open source flight control platform

- As the official partner of open source flight control, Nanoradar UAV radar has achieved seamless docking with the open source flight control platform (APM: Ardupilot), and its communication protocol is perfectly adapted to the official platform protocol, which can be plug-and-play, providing customers with a "one-stop" intelligent solution from perception to control.

UAM231 UAV Altimeter Millimeter Wave Radar

Technical specifications

Parameter	Condition	Minimum value	Typical value	Maximum value	Unit
System characteristics					
Transmit frequency	The bandwidth is adjustable	24.00		24.25	GHz
Transmit Power (EIRP)			25		dBm
Modulation mode			FMCW		
Update rate			40		Hz
Power consumption	@5V DC 25℃	1.6	1.8	2.5	W
Measurement characteristics					
Ranging range	@0 dBsm	0.2		800	m
Ranging accuracy	0.2-22m		±0.02		m
	22-155m		±0.1		m
	155-800m		±2.5		m
Speed measurement range		-40m/s.. + 40m/s (-for down, + for up)			m/s
Multi-target tracking characteristic					
While tracking the target			1		A
Antenna characteristics					
Beam width	Azimuth plane (-6 dB)		28		deg
	Elevation plane (-6 dB)		18		deg
Number of antenna channels	1TX/1RX				
Interface type					
Interface	UART（TTL）/CAN/RS232/RS422/RS485				
Other features					
Operating voltage		7	12	24	V DC
Operating current	@5V/25℃	250	140	80	mA
Storage temperature		-40		85	℃
Operating temperature		-40		70	℃
Waterproof grade			IP67		
Weight	148				g
Size	132.4×73.2×17.5				mm

UAM231 UAV Altimeter Millimeter Wave Radar

Application scenario

The products can be used in the scenarios of logistics UAV fixed height, aircraft low-altitude landing, UAV vertical traction, flying car fixed height and so on.