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BORADAR-200

Millimeter-Wave Altimeter Radar for UAV Applications

BORADAR-200 provides accurate and reliable altitude measurement by transmitting downward-facing millimeter-wave FMCW signals and processing the reflected data in real time. The radar continuously determines the relative height between the aircraft and the terrain, helping UAV platforms maintain stable altitude and dependable terrain-following performance.



- High Accuracy ±0.1 m
- All-Weather Operation
- Compact & Lightweight
- High Anti-Interference Capability

PRODUCT OVERVIEW

BORADAR-200 is a terrain-tracking radar altimeter engineered for UAVs, helicopters, and other low-altitude airborne platforms.

Built on FMCW radar technology, the system measures altitude change and relative ground distance with high precision while maintaining strong resistance to environmental interference.

Its lightweight, compact, and highly integrated architecture supports reliable operation in fog, smoke, dust, and other visually challenging environments.

BORADAR-200 is designed for all-weather, all-day deployment in UAV/UAS, helicopter, and small airship applications where stable altitude awareness is critical.



BORADAR-200

SAĞLAMTEK
Havacılık & Savunma A.Ş.
www.saglamtek.com | info@saglamtek.com | +90 505 237 33 81

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UAV Altimeter Radar



PRODUCT CHARACTERISTICS

Accurate, Effective and Safe

Long Detection Range
Supports altitude detection up to 200 meters across a wide range of operational scenes.

Efficient Performance
The 24 GHz ISM band supports stable detection and accurate ranging for moving targets.

Stable Interfaces
UART (TTL) and CAN interfaces are supported; CAN communication speed can reach up to 500 kbit/s.

Continuous Operation in Demanding Environments

All-Weather Capability
Designed for rain, snow, fog, smoke, and dust environments to reduce missed detections and false alarms.

Strong Anti-Jamming Performance
Optimized antenna and algorithm design reduce sidelobe interference, improve signal-to-noise ratio, and strengthen target detection reliability.

High Protection Level
IP66-rated enclosure with robust resistance to dust, water ingress, shock, and harsh field conditions.

Efficient, Reliable and Highly Integrated

High Integration
Advanced signal processing architecture enables target detection, track filtering, and target output within a compact single-chip platform.

Multiple Mainstream Interfaces
Integrated support for commonly used communication interfaces including UART and CAN.

24/7/365 Operation
Suitable for continuous long-duration deployment in mission-critical UAV operations.

Compact, Lightweight and Easy to Integrate

Compact Form Factor
Approximate enclosure size is 75 x 138 x 21 mm, making it suitable for UAVs of various sizes.

Light Weight
The enclosure weight is approximately 95 g, helping reduce payload burden and support endurance.

Simple Installation
Can be mounted conveniently using adhesive or screws and can be used together with attitude compensation equipment for high-precision applications.

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TECHNICAL SPECIFICATIONS

Parameter	Condition	Minimum	Typical	Maximum	Unit
SYSTEM CHARACTERISTICS					
Modulation Mode	—	—	FMCW	—	—
Update Rate	—	—	42	—	Hz
Power Consumption	@12V DC, 25 °C	—	—	≤2	W
RANGING CHARACTERISTICS					
Ranging Range	@ Grass	0.1	—	200	m
Ranging Accuracy	0.5–30 m	—	±0.1	—	m
Ranging Accuracy	30–100 m	—	±1	—	m
Ranging Accuracy	100–200 m	—	±2	—	m
MULTI-TARGET TRACKING CHARACTERISTICS					
Number of Trackable Targets	—	—	1	—	target
Range Resolution	0.5–30 m	—	0.75	—	m
Range Resolution	30–100 m	—	1.5	—	m
Range Resolution	100–200 m	—	2	—	m
ANTENNA CHARACTERISTICS					
Beamwidth/TX	Azimuth Plane (-6 dB)	—	28	—	deg
Beamwidth/TX	Elevation Plane (-6 dB)	—	18	—	deg
Receive Antenna/RX	Azimuth Plane (-6 dB)	—	27	—	deg
Receive Antenna/RX	Elevation Plane (-6 dB)	—	17	—	deg
OTHER FEATURES					
Operating Voltage	—	5	12	20	V DC
Operating Current	@12V / 25°C	—	—	≤90	mA
Storage Temperature	—	-40	—	85	°C
Operating Temperature	—	-40	—	70	°C
Waterproof Grade	—	—	IP66	—	—
Weight	Includes a connecting line	—	95	—	g
Size	@ L × W × H	—	75 x 138 x 21	—	mm
Certification	—	—	CE, FCC, RoHS, RED	—	—

ⓘ The mmWave radar function may be unavailable in some countries or regions. Please refer to local laws and regulations for details.

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UAV Altimeter Radar

Application Areas

BORADAR-200 is designed for reliable altitude measurement and low-altitude navigation support across a wide range of unmanned and autonomous platforms. Its compact structure, radar-based sensing capability, and all-weather operation make it suitable for applications where stable altitude information is critical.
The system can be integrated into UAVs, unmanned surface vehicles, robotic platforms, and other autonomous systems requiring precise distance measurement from the ground or target surface.



Mapping and Surveying

Stable altitude data for mapping, terrain profiling, and low-altitude survey missions.



Agricultural UAV Operations

Consistent flight altitude for crop monitoring and precision agriculture.



Logistics and Delivery UAVs

Reliable altitude awareness during autonomous delivery and landing operations.



Firefighting and Emergency Response

Dependable sensing in smoke, dust, and low-visibility environments.



Search and Rescue Missions

Safe operation in complex terrain and challenging field conditions.



Power Line and Infrastructure Inspection

Accurate altitude feedback during close-range inspection tasks.