



CR-PK14B

Ku-Band Long-Range Pulse-Doppler Phased Array Radar

Technical Specification



Image for reference only. Finish color can be customized on request, e.g. desert tan, tactical gray, or camouflage patterns.

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Version	Date	Description
V1.0	2025-10-18	Initial version.
V2.0	2026-03-16	Specifications updated to the latest production configuration; packing list added.
V3.1	2026-05-20	Product images and document structure revised; maintenance, transportation and service sections added; minor editorial corrections.



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1 Product Overview

The CR-PK14B is a Ku-band long-range phased array radar built on an all-solid-state, fully coherent, pulse-Doppler architecture, providing all-weather detection and early warning of low, slow and small (LSS) targets at ranges beyond 8km (RCS 0.01m², drone).

Using machine learning and AI classification based on micro-Doppler and track features, the radar effectively detects and classifies LSS targets such as drones, light aircraft, helicopters, powered paragliders, airships and balloons at an extremely low false alarm rate.

The turntable-mounted single panel supports both one-dimensional mechanical scan plus one-dimensional electronic scan and full two-dimensional electronic scan modes, switching flexibly without any software change. It is designed for border surveillance, large-site perimeter protection and counter-UAS sensor networks requiring wide-area Ku-band coverage.



2 Main Functions

Detection & Coverage

- Strong detection performance with a low false alarm rate; stably detects maneuvering drones;
- Rain and cloud clutter suppression enables all-weather operation;
- One-dimensional mechanical scan plus one-dimensional electronic scan, and full 2D electronic scan modes provide 360° airspace coverage and priority-sector surveillance, switching flexibly without any software change.

Tracking & Classification

- Mechanical-scan tracking and electronic-scan TAS tracking;
- AI classification based on micro-Doppler and track features distinguishes drones, birds, people and vehicles.

Deployment & Operation

- Machine learning adapts to the site environment — the radar works on installation with no parameter tuning;
- A built-in self-positioning calibration module provides automatic leveling and north finding.



3 Technical Specifications

3.1 Basic Performance & Accuracy

Item	Parameter
Frequency band	Ku band (15.7GHz ~ 16.7GHz)
Detection range	$\geq 8\text{km}$ (RCS 0.01m^2 , drone)
Blind zone	$\leq 200\text{m}$
Operating mode	Mechanical scan + 2D electronic scan
Search coverage	Mechanical: azimuth $0^\circ \sim 360^\circ$, elevation $0^\circ \sim 40^\circ$; electronic: azimuth $-45^\circ \sim 45^\circ$, elevation $0^\circ \sim 40^\circ$
TAS tracked targets	≥ 6
Minimum detection altitude	$\leq 10\text{m}$
Velocity range	$1\text{m/s} \sim 100\text{m/s}$
Update rate	Mechanical $\leq 6\text{s}$; electronic $\leq 6\text{s}$
Search accuracy (RMS)	Range $\leq 6\text{m}$, azimuth $\leq 0.4^\circ$, elevation $\leq 0.4^\circ$
Target capacity	≥ 500 targets

3.2 Electrical Interface

Item	Parameter
Communication	RJ45 Ethernet
Power supply	AC220V / DC24V
Power consumption	$\leq 800\text{W}$

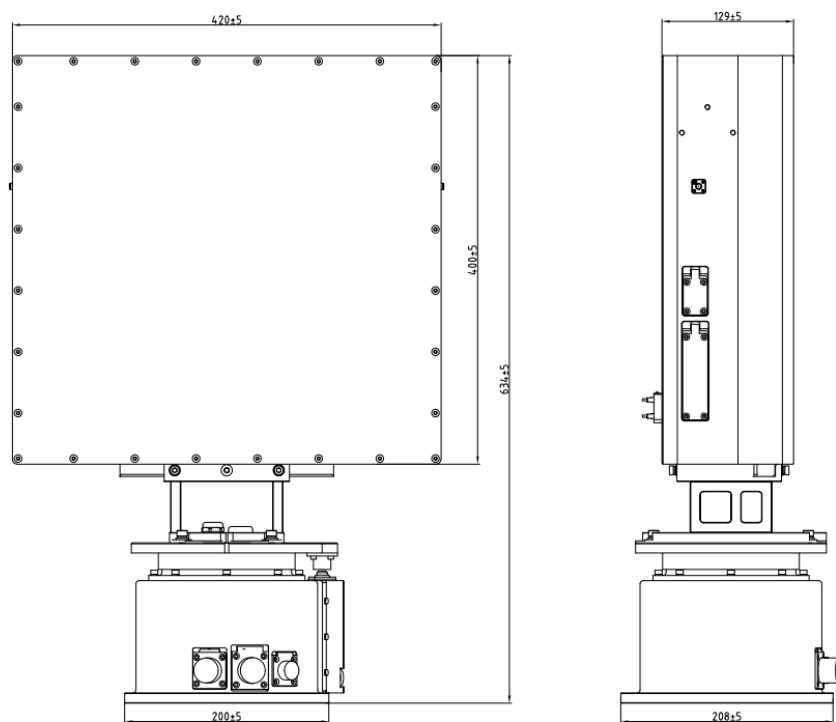
3.3 Physical & Environmental

Item	Parameter
Weight	$\leq 35\text{kg}$ (excl. power supply and tripod)
Dimensions	$\leq 640 \times 425 \times 135\text{mm}$
Operating temperature	$-40^\circ\text{C} \sim +60^\circ\text{C}$
Protection rating	IP66

The above specifications are typical nominal values; actual values are subject to the product contract and technical agreement.



4 Equipment Dimensions



CR-PK14B structural and installation dimensions (unit: mm)



5 Delivery List

5.1 Packing List

No.	Item	Unit	Qty
1	Radar array	Unit	1
2	Servo turntable	Set	1
3	AC/DC power adapter	Set	1
4	Ethernet cable	PC	1
5	GPS antenna (with cable)	Pair	1
6	Mounting accessories	Set	1
7	Product certificate	Copy	1
8	Operation & maintenance manual	Copy	1
9	Display & control software and communication protocol	Set	1

5.2 Logistics Dimensions

The complete set is packed in 2 cartons with a total gross weight of approximately 55kg.

No.	Contents	Carton dimensions (L×W×H, mm)	Gross weight
1	Radar host (array and servo turntable)	775 × 440 × 245	≈37kg
2	Power adapter, cables and accessories	490 × 350 × 320	≈18kg



6 Maintenance

6.1 Maintenance Schedule

The maintenance schedule may be determined according to actual service conditions, and shall in principle meet the following requirements:

- a) Perform maintenance once after transportation and before use;
- b) For radars in storage, perform maintenance every 3 months.

6.2 Maintenance Content

- a) Check the equipment appearance and completeness; check the installation for rust or cracks, installation firmness, and potential safety hazards of the installation platform;
- b) Power on and run the equipment for testing to ensure there is no abnormal radar alarm;
- c) Wipe dust and stains off the housings of the radar array face, servo turntable and power module with a dry, clean cloth;
- d) After the turntable has actually operated for 2 years, please contact the manufacturer for maintenance and replacement.



7 Transportation and Storage

7.1 Transportation Requirements

- The equipment can be transported by road, railway or air. Shock-proof packaging in dedicated packing cases is required during transportation.

7.2 Storage Requirements

7.2.1 Storage Environment

Packaged products shall be stored under the following environmental conditions to ensure their service life:

- a) Temperature
- b) Relative humidity
- c) The warehouse shall be free of acids, alkalis and other corrosive gases harmful to the equipment; during storage there shall be no strong mechanical vibration, shock or strong magnetic field.

7.2.2 Storage Life

- Unless otherwise specified in the contract, the storage period of this product shall not exceed five years from the date of receipt by the ordering party.



8 After-Sales Service

- a) The warranty period is 1 year. During this period, if the product is damaged or fails to work normally due to quality problems, the manufacturer is obliged to repair or replace it free of charge;
- b) The company responds to after-sales service requests from purchasing units within 12 hours.