

CR-PK13C

Ku-Band Short-Range Pulse-Doppler Four-Faced Array Radar

Technical Specification

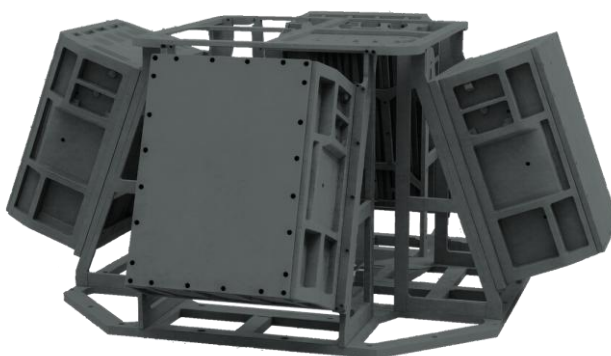


Image for reference only. Finish color can be customized on request, e.g. desert tan, tactical gray, or camouflage patterns.

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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-PK13C is a Ku-band short-range four-faced 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 3km (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.

Four fixed panels provide instantaneous 360° azimuth coverage with no mechanical scanning parts. The Ku-band array delivers fine measurement accuracy at short range, and elevation coverage, target update rate and instrumented range are software-configurable — a persistent low-altitude surveillance node for airports, critical infrastructure and urban security.



2 Main Functions

Detection & Coverage

- Four fixed panels provide 360° omnidirectional coverage with no mechanical scanning;
- Rain and cloud clutter suppression enables all-weather operation;
- Elevation coverage, target update rate and instrumented range are software-configurable.

Tracking & Classification

- TAS tracking of 24 targets with 0.5s single-target updates;
- AI classification based on micro-Doppler and track features identifies drones, birds, people and vehicles;
- Map-based target positioning, track display and replay with range, azimuth, elevation and velocity readouts.

Data & Operation

- Records and stores target plots, tracks and radar status data with replay and query support;
- Machine learning adapts to the environment — powers on and works with no parameter tuning;
- Self-positioning and orientation with automatic pitch and roll compensation;
- Real-time operating status monitoring.



3 Technical Specifications

3.1 Basic Performance & Accuracy

Item	Parameter
Frequency band	Ku band (15.7GHz ~ 16.7GHz)
Detection range	$\geq 3\text{km}$ (RCS 0.01m^2 , drone)
Blind zone	$\leq 100\text{m}$
Operating mode	2D phased array (electronic scan)
Search coverage	Azimuth $0^\circ \sim 360^\circ$, elevation $0^\circ \sim 30^\circ$ (mission configurable)
Tracking	TAS capable
TAS tracked targets	≥ 24
Minimum detection altitude	$\leq 10\text{m}$
Velocity range	$1\text{m/s} \sim 100\text{m/s}$
Update rate	TWS $\leq 3\text{s}$ (elevation coverage 30° , range 6km); TAS 0.5s (single target, default)
Resolution	Range $\leq 15\text{m}$, azimuth $\leq 6^\circ$, elevation $\leq 6^\circ$
Detection accuracy (RMS)	Range $\leq 10\text{m}$, azimuth $\leq 0.4^\circ$, elevation $\leq 0.5^\circ$
Target capacity	≥ 500 targets

3.2 Electrical Interface

Item	Parameter
Communication	RJ45 Ethernet
Power supply	AC220V / DC24V
Power consumption	$\leq 1400\text{W}$

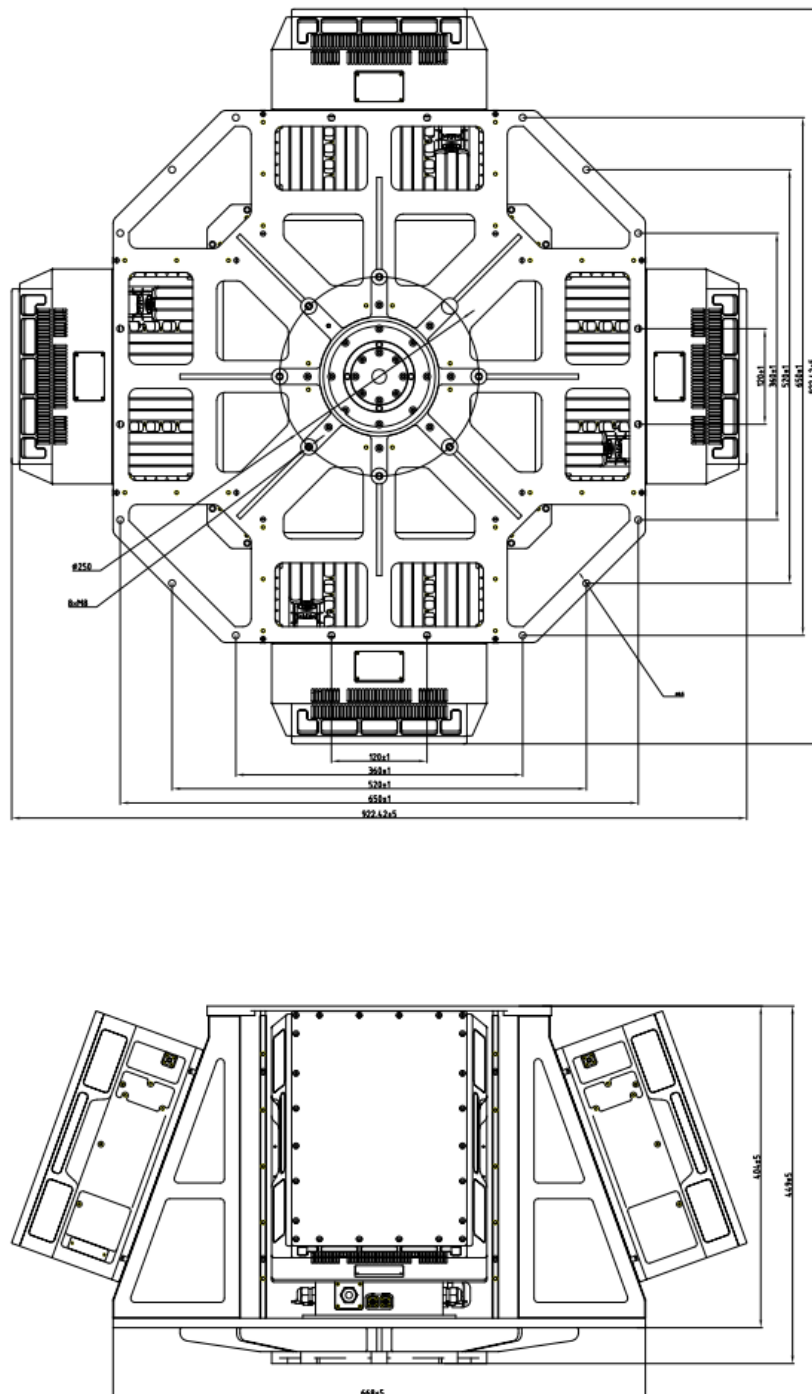
3.3 Physical & Environmental

Item	Parameter
Weight	$\leq 77\text{kg}$ (net weight, excl. power supply and cables)
Dimensions	$\leq 672 \times 672 \times 452\text{mm}$
Operating temperature	$-40^\circ\text{C} \sim +65^\circ\text{C}$
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-PK13C structural and installation dimensions (unit: mm)



5 Delivery List

5.1 Packing List

No.	Item	Unit	Qty
1	Radar array	Unit	4
2	Integrated module	PC	1
3	Coaxial cable	PC	8
4	AC/DC power adapter	Set	1
5	Aviation-connector Ethernet cable	PC	1
6	GPS antenna	Pair	1
7	Commissioning cable	PC	1
8	USB-to-RS232 cable	PC	1
9	Structural mounting enclosure	Set	1
10	Array cable	PC	4
11	Mounting accessories	Set	1
12	Transport case	PC	6
13	Product certificate	Copy	1
14	Operation & maintenance manual	Copy	1
15	Display & control software and communication protocol	Set	1

5.2 Logistics Dimensions

Reference packing: 6 cartons with a total gross weight of approximately 115kg; carton 6 (structural assembly) is optional and depends on the installation configuration.

No.	Contents	Carton dimensions (L×W×H, mm)	Qty
1	Radar panel 1	500 × 430 × 250	1
2	Radar panel 2	500 × 430 × 250	1
3	Radar panel 3	500 × 430 × 250	1
4	Radar panel 4 and GPS antenna	870 × 440 × 280	1
5	Power supply, cables and integrated module	630 × 540 × 280	1
6	Optional structural assembly and integrated module	750 × 750 × 230	1



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 faces, integrated module and power module with a dry, clean cloth;
- d) Periodically check that the array and coaxial cable connections are secure.



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.