



CR-PX11B

X-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-PX11B is an X-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 10km (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 combines mechanical scanning with two-dimensional electronic scanning for 360° azimuth coverage and fast target updates. Its long reach suits wide-area low-altitude surveillance, border and coastline monitoring, and counter-UAS command-and-control networks.



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;
- Mechanical scanning combined with 2D electronic scanning covers the full 360° airspace and priority sectors;
- Elevation coverage, target update rate and instrumented range are software-configurable.

Tracking & Classification

- Mechanical-scan tracking and electronic-scan TAS tracking;
- 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	X band (9.2GHz ~ 9.8GHz)
Detection range	$\geq 10\text{km}$ (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 $0^\circ \sim 60^\circ$ (mission configurable); electronic: azimuth $-45^\circ \sim 45^\circ$, elevation $0^\circ \sim 60^\circ$ (mission configurable)
Tracking	Mechanical-scan tracking / electronic-scan TAS
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 $\leq 5\text{s}$; electronic $\leq 4\text{s}$ (elevation coverage 30°)
Resolution	Range $\leq 15\text{m}$, azimuth $\leq 6^\circ$, elevation $\leq 4^\circ$
Search accuracy (RMS)	Range $\leq 10\text{m}$, azimuth $\leq 0.4^\circ$, elevation $\leq 0.4^\circ$
Tracking accuracy (RMS)	Range $\leq 10\text{m}$, azimuth $\leq 0.3^\circ$, elevation $\leq 0.3^\circ$
Target capacity	≥ 500 targets

3.2 Electrical Interface

Item	Parameter
Communication	RJ45 Ethernet
Power supply	AC220V / DC24V
Power consumption	$\leq 1300\text{W}$

3.3 Physical & Environmental

Item	Parameter
Weight	$\leq 38\text{kg}$ (net weight, excl. power supply and cables)
Dimensions	$\leq 785 \times 340 \times 220\text{mm}$
Operating temperature	$-40^\circ\text{C} \sim +60^\circ\text{C}$

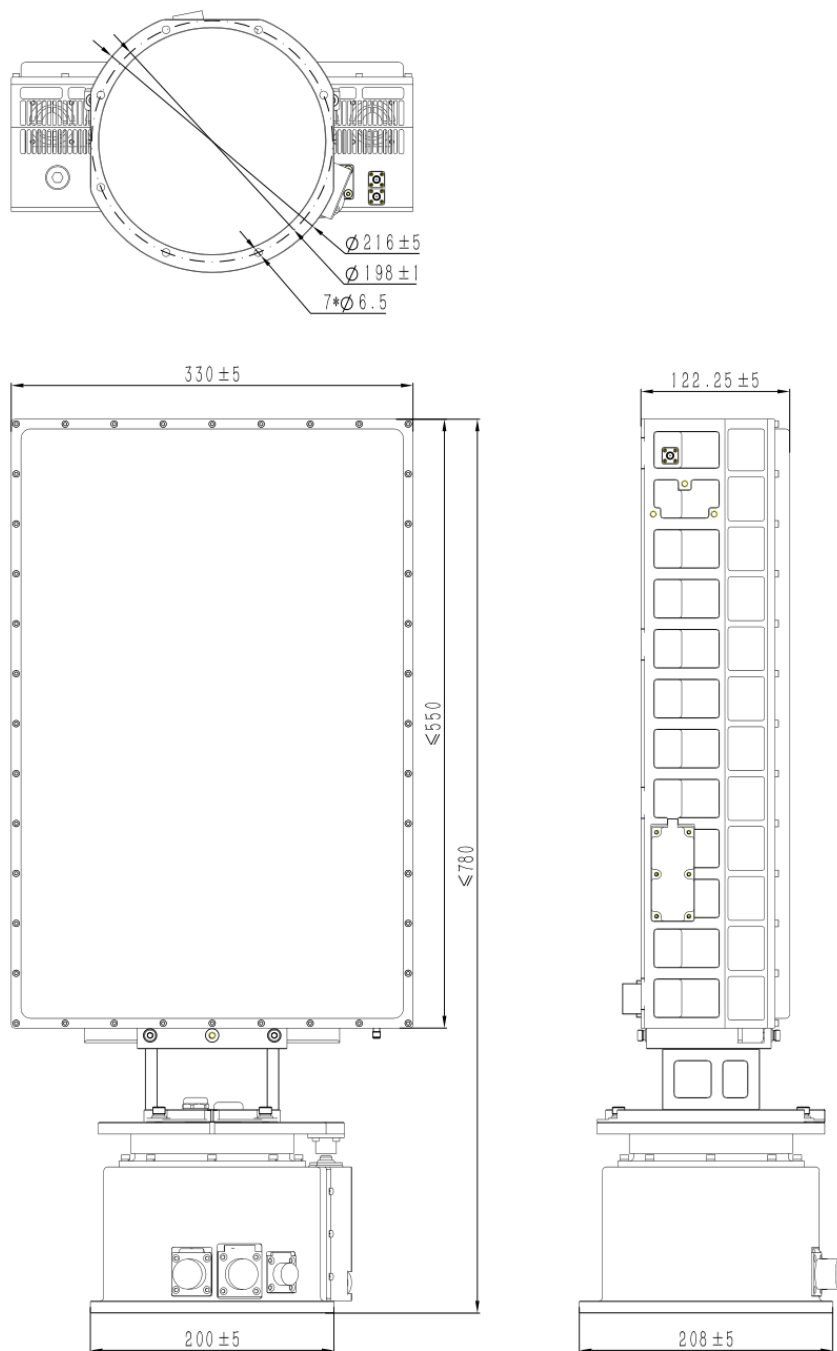


Item	Parameter
Protection rating	IP66

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



4 Equipment Dimensions



CR-PX11B structural and installation dimensions (unit: mm)



5 Delivery 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



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.