X-band Long-Range Phased Array Radar AI-Based Trajectory Feature Recognition For Accurate Target Classification

Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: MYT
- Certification: CNAS、CMA、CAL、ILAC-MRA
- Model Number: DD-R38
- Minimum Order Quantity: 1
- Price: Pricing is negotiable based on order quantity
- Delivery Time: 10 work days
- Payment Terms: L/C,T/T
- Supply Ability: 1000units per month

Product Specification

- TAS Tracking Target Count:≥6
- Minimum Detection Altitude:10m~5000m
- Velocity Range: 1m/s~100m/s
- Resolution Ratio: Distance: ≤15m, Azimuth: ≤6°, Elevation: ≤4°
- Operating Temperature Range: -40 +60
- Size: ≤785mm*340mm*220mm
- Power Dissipation: ≤1200W
- Supply Electricity: AC220V/DC24V
- Levels Of Protection: IP66
- Joggle: RJ45 Network Port
- Highlight: **X-band phased array radar**, **long-range anti UAV radar**, **AI trajectory recognition radar**

Product Description

The DD-R38 X-band long-range phased array radar

1, Product Overview

The DD - R38 X - band long - range phased array radar is a remarkable piece of equipment. Characterized by a fully solid - state, fully coherent, and pulse Doppler system, this radar is designed to provide all - weather detection capabilities. It is specifically tailored for early warning of "low, small, slow" targets.

In the modern airspace, such targets pose unique challenges. These can range from small unmanned aerial vehicles (drones) that might be used for various purposes, some of which could be potentially malicious. Light aircraft, helicopters, powered triplanes, airships, and airborne balloons also fall into this category of "low, small, slow" objects.

To accurately detect and classify these targets, the DD - R38 radar harnesses the power of machine learning and AI - based trajectory feature recognition. This advanced technology allows the radar to analyze the movement patterns and characteristics of these objects. As a result, it can achieve highly accurate detection and classification. What's more, it does so with extremely low false alarm rates. This means that operators can rely on the radar's readings with a high degree of confidence, ensuring that real threats are not overlooked and that unnecessary alerts are minimized.

2, Function

The product utilizes advanced machine learning technology. This enables it to adapt to battlefield environments and be directly deployed for use upon installation, without the requirement for parameter adjustment. The system boasts robust detection capabilities and an extremely low false alarm rate, effectively detecting the maneuvering flights of unmanned aerial vehicles. To guarantee reliable all-weather operation, the product is equipped with cloud and rain noise suppression functionality, enabling continuous operation under diverse weather conditions.

Regarding scanning modes, the system provides two directional scanning methods: "one-dimensional mechanical scanning + one-dimensional phase scanning" and "two-dimensional phase scanning". It can achieve both 360° all-round airspace detection and precise monitoring of key areas. The two modes can be flexibly switched without the need for software modifications. The product concurrently integrates mechanical scanning tracking and phase scanning TAS tracking functions to ensure continuous and stable target tracking.

AI recognition technology based on "track features" empowers the system to accurately classify and identify multiple target types, including drones, birds, personnel, and vehicles. The built-in automatic positioning and calibration module can automatically perform equipment leveling and calibration functions, streamlining the operation process. Moreover, the system offers flexible setting functions for distance and elevation scanning ranges, enabling users to make personalized configurations according to actual requirements.

3, qualification

order number	parameter	metric
1	frequency range	X frequency range
2	detection range	≥10Km(RCS:0.01m^2, unmanned aerial vehicle) ≥20Km(RCS:0.3m^2, unmanned aerial vehicle)
3	fade zone	≤ 150m
4	work pattern	Supports machine scanning and 2D phase scanning

5	hunting zone	Scan: Angle: 0°~360°, Pitch: 0°~60° (configure according to task requirements)
		Sweep: Azimuth: -45° to 45°, elevation: 0° to 60° (configure according to mission requirements)
6	trace function	Machine scanning tracking function / phase scanning TAS function
7	TAS tracking target count	≥6
8	Minimum detection altitude	10m~5000m
9	velocity range	1m/s~100m/s
10	Target update rate	The scanning speed is ≤5 seconds per phase, with a pitch coverage of 30° and a range of 15km.
11	resolution ratio	Distance: <15m, azimuth: <6°, elevation: <4°
12	Search precision (RMS)	Distance: <10m, azimuth: <0.4°, elevation: <0.4°
13	Tracking accuracy (RMS)	Distance: <10m, azimuth: <0.3°, elevation: <0.3°
14	joggle	RJ45 network port
15	target capacity	≥500 batches
16	weight	≤ 38Kg (net weight of the device, excluding power supply/cable)
17	supply electricity	AC220V/DC24V
18	power dissipation	≤1200W
19	size	≤785mm*340mm*220mm
20	operating temperature range	-40 +60
21	levels of protection	IP66

4, Application Scenarios

5, Certification Certificate

6, Company profile

Chongqing Miao Yitang Technology Co., Ltd. is a specialized company engaged in anti-drone and unmanned intelligent defense management.

With the technical support from the AI Internet of Things Research Institute of the Chinese Academy of Sciences and collaborations with multiple intelligent AI companies, the company has established research laboratories for AI unmanned field products, accumulating a variety of technical patents.

The company's products are widely applied to unmanned automatic management solutions for various defense and perimeter areas, including AI anti-drone systems and AI unmanned vehicle patrol systems. These systems integrate with multiple technologies such as optoelectronics, radar, vibration, thermal imaging, facial recognition, and radio frequency management, truly achieving a 24-hour uninterrupted anti-drone defense and ground perimeter defense warning system. This allows for cost savings for clients, reduction in human resource allocation, and

ensures the safety of clients' lives and property. The outstanding security system has won the company an excellent reputation and created higher value for its partners.

7, Customer Service

1). We offer 24 hours service after sales
2). If there are any usage or quality issues with the product, we provide online technical support to diagnose the cause of the problem.
3). Should you find the products unsatisfactory, kindly return it to us within a period of 3 months from the date of dispatch. Upon receipt and inspection, should the products be found to be free from any damage attributable to human factors, a full refund will be granted. Alternatively, we can engage in discussions to amend the product and subsequently reship the product to you.

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