DR 100 for C-UAS

KONGSBERG

3D Drone Detection Radar

The KONGSBERG DR 100 is a compact, solid-state, non-rotating doppler radar designed for reliable detection, tracking and classification of small unmanned aerial systems (UAS). The radar provides continuous 3D situational awareness directly from the radar panel, enabling rapid response to emerging threats. It is optimized for detection of low-cost, commercially available drones and delivers robust performance in complex operational environments. Its small size, weight and power profile enable flexible deployment across both fixed and mobile platforms.

Key capabilities

The DR 100 provides true 3D detection and tracking, combining spatial positioning with velocity information to deliver a complete target picture. It achieves high classification probability and is optimized for detecting small and low radar cross-section UAVs. The radar offers a wide field of view, exceeding 140 degrees in azimuth and approximately 90 degrees in elevation for detection, while maintaining a high-confidence classification sector of around 90–100 degrees horizontally and 50 degrees vertically. The system continuously generates a real-time situational picture based on low-power FMCW radar technology.

Operational concept

The DR 100 supports both standalone operations and distributed network configurations. In a single-site setup, the radar provides wide-area coverage with a high classification confidence. Multiple radar panels can be combined at one location to achieve full 360-degree coverage. In more advanced deployments, several radar units can be networked together using standard IP-based communication to extend the detection range and enable coordinated operations. This distributed approach allows for flexible adaptation to different threat scenarios and operational requirements.

Classification and tracking

The DR 100 incorporates advanced tracking and classification algorithms that enable early detection and reliable identification of airborne objects. The system differentiates between various target types, including small drones, birds, vehicles, personnel and surface objects. Classification is based on a built-in signature library, which supports continuous updates to maintain effectiveness against evolving UAV technologies. This ensures a high level of adaptability and long-term operational relevance.

Effector integration

The radar is designed to integrate seamlessly with counter-UAS effectors, supporting both soft-kill and hard-kill solutions. It provides accurate target data, including range, azimuth and velocity, enabling reliable cueing of external systems such as Remote Weapon Systems. The DR 100 has been tested in both direct mounting configurations and in setups involving remote weapon stations, ensuring flexibility in system integration.

Mobility and deployment

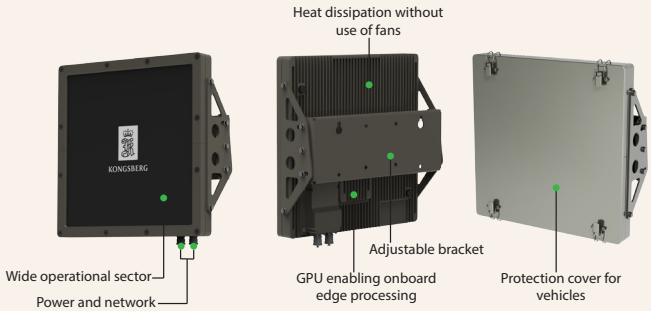
The compact and lightweight design allows for rapid deployment by a single operator. The radar can be installed on tripods for temporary or fixed positions, as well as integrated on vehicles or vessels for mobile operations. This flexibility enables on-the-move counter-UAS capabilities and supports a wide range of operational scenarios.

Robust design

The DR 100 is based on a solid-state architecture with no rotating parts, resulting in high reliability and low maintenance requirements. The system uses passive cooling, eliminating the need for fans and reducing mechanical complexity. The design is derived from KONGSBERG's experience in demanding environments and is suitable for operation in harsh conditions, including maritime and desert environments.

FEATURES

- Specifically designed for detection, tracking and classification of small UAVs (Unmanned Aerial Vehicle) in cluttered environments
- High update rate and low latency
- Individual tracking of drones in a swarm
- Networking of radars
- Small target detection
- Optimized frequency for penetration in rain and snow
- All processing onboard the panel
- Target data over LAN on various protocols
- Interface towards Kongsberg Situational Awareness solution (ProximityView)
- Optionally; Broadband communication solutions optimized for real-time systems such as a distributed radar system
- Available in standard colours green or grey



Technical specifications

DR 100 for C-UAS

Technology	FMCW/doppler/micro doppler
Frequency	9.40 - 9.60 GHz (X-band)
Accuracy range	< 0.5 m
Accuracy azimuth	< 0.5°
Accuracy elevation	< 1.0
Measurement rate	13 Hz
Update rate	0.1 - 13 Hz (configurable)
Latency	< 150 ms
No. of simultaneous targets	> 100
Target speed	> 70 m/s
Data protocol	Native JSON (proprietary), Asterix, Sapient[1]
Instrumented range	4.3 km
Time to classification	<2 sec
Minimum height of target	0 m (full scene processing sea/land)

Interfaces

Ethernet/LAN	1 Gb (Amphenol 38999/mil connector)

Performance range

Field of view	140° horizontally, 90° vertically
High prob. classification	90° horizontally, 50° vertically

NATO type	RCS	Tracking range	Classification range
Class 1a Nano	0.001 m^2	0.6 km	0.45 km
Class 1b Micro	0.005 m^2	1 km	0.7 km
Class 1c Mini	0.1 m^2	1.5 km	1 km
Class 1d Small	0.5 m^2	2 km	1.4 km
Class 2 Tactical	1 m^2	2.6 km	1.75 km
Class 3 Strike	20 m^2	4.3 km	3.3 km

Boat (RHIB)/vehicle	3.5 - 4.3 km (track/classification)
Personnel movement	2.5 - 3.0 km (track/classification)

IMU sensor during on-the-move

Built-in IMU in radar	Normal vehicle and boat movements
Supported IMU/gyro	MRU 5+, MGC R2, MGC R3 (See dedicated datasheets for technical information) Contact Kongsberg Discovery sales for non-Kongsberg IMU support

Weight and dimensions

Dimensions	400 × 400 mm
Weight incl. bracket	9.9 kg

Power specifications

Supply voltage	19 - 34 VDC
Power consumption	50 - 70 W
Connector	Amphenol 38999

Environmental specifications

Operating temperature	-25 °C - +55 °C
Storage temperature	-40 °C- +70 °C
Operating humidiety	100 %
Storage humidity	60 %, max.
Ingress protection	IP67
Safety distance	0.5 m

Standards and regulations

EMC	IEC 60945/EN 60945 MIL-STD-461 (where relevant)
Product safety	IEC 61010-1/EN 61010-1 IEC 62368-1
Environmental	IEC 60945/MIL STD 810H (random vibration)
Spectrum	ETSI EN 300 440 V1.2.1 (2021-04) CEPT ECC ERC Rec. 74-01 (2022-05-23)[2]
Maritime	IEC 60945
Power surge	MIL STD 1275E

1 *Sapient is under implementation*
2 *Radio location license may be required*

Quad DR 100 with PTZ camera for 360° coverage

Specifications subject to change without any further notice.

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