SPEXER® 500/1000

Security Radars for Camp, Perimeter and Infrastructure Surveillance

SPEXER 500 and SPEXER 1000 are high-performance radars for the surveillance of camps, perimeters, infrastructures and borders in areas of limited line of sight due to local conditions e.g. very hilly areas. They also ensure the surveillance of sensitive and protected areas such as oil fields, power plants, airports, etc.

Both radars have the same functional-ities but offer different detection ranges for optimal use in the respective environments.

Developed for security applications requiring a high situational awareness, these radars are able to automatically detect and classify ground, sea and low-flying air targets.

The highly portable SPEXER 500 and SPEXER 1000 are part of the SPEXER security radar family that has already proven its outstanding performance in integrated security systems in several regions of the world.

The new Sensor House

HENSOLDT
Detect and Protect.

The radars combine the surveillance of ground, sea and low air space and are also capable of working under harsh climatic conditions, whereas other sensors, such as cameras, would fail. Therefore, they are the perfect solution for the protection against contemporary threats in mid-range security applications, including also asymmetric threats.

SPEXER 500 and SPEXER 1000 offer new operational features on the basis of modern Digital Beam Forming (DBF) technology. They instantaneously observe a large area, thus achieving a higher level of reconnaissance efficiency than any other mechanically or electronically scanned radar: SPEXER 500 and SPEXER 1000 do not only have one beam at a specific time but provide several instantaneous beams which ensure a very outstanding update rate.

The update rate, azimuth coverage and detection range of a radar can generally only be optimised at the expense of other parameters. Since SPEXER 500 and SPEXER 1000 are DBF radars, they have an extremely flexible mode design and set-up: both radars provide three modes for the specific surveillance task: very high update rate for high situational awareness, very large azimuth coverage for large sector surveillance and very high detection range for early threat detection.

SPEXER 500 and SPEXER 1000 can be deployed as land-based fixed system (e.g. on a mast/tower), as a highly portable system (on a tripod) or they can be integrated into a smart vehicle. Optionally, they can be combined with a camera for optical verification purposes.

Functional Data	*SPEXER 500	*SPEXER 1000
Type	FMCW radar based on DBF technology	
Frequency	X-band	
Instrumented range	9 km (5.6 mi)	18 km (11.2 mi; 9.7 NM)
Detection ranges (depending on the operation mode)	Pedestrian (0.5 m² RCS): 5 km (3.1 mi) Light vehicle (2 m² RCS): 7 km (4.3 mi) Truck (10 m² RCS): 9 km (5.6 mi) UAV (0.2 m² RCS): 2.5 km (1.6 mi) Light aircraft (3 m² RCS): 7.5 km (4.7 mi) Low-level helicopter (5 m² RCS): 9 km (5.6 mi)	Pedestrian (0.5 m² RCS): 8 km (5 mi) Light vehicle (2 m² RCS) : 11 km (6.8 mi) Truck (10 m² RCS): 17 km (10.6 mi) UAV (0.2 m² RCS): 4 km (2.5 mi) Light aircraft (3 m² RCS): 12 km (7.5 mi) Low-level helicopter (5 m² RCS): 16 km (9.9 mi) Small boat, rubber dinghy (1.5 m² RCS): 10 km (5.4 NM)
Coverage	120° in azimuth 4° elevation beam width; opt. +/- 20° elevation tiltion tilt	
Dimensions	Width: 0.9 m (35.4 in), Height: 0.6 m (23.6 in), Depth: < 0.2 m (< 7.9 in)	

* Both variants can be combined in a surveillance system.

Main Characteristics

- Surveillance of large areas / long distances
- High update rate (≤ 1.5 seconds for up to 120°) ensuring very early warning / a high level of situational awareness
- Detection and tracking of even very small and slowly moving targets, e.g. pedestrians (due to high Doppler resolution)
- Automatic target classification (optional)
- Very flexible surveillance scenarios (due to three different radar modes)
- High target location accuracy (in range and azimuth)
- Highly portable, low-weight and low-size radar
- Interface for easy integration into a C2 system
- Ready for multi-radar operation also in combination with cameras (in network)
- Very low radiated power: 4 Watt
- Graceful degradation capability and very high MTBF in particular due to the multi-channel Digital Beam Forming concept
- Low lifecycle cost due to Digital Beam Forming instead of a permanently rotating antenna
- Operation even under harsh climatic conditions

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