



## **SPEXER® 2000**

### Security Radar for Border Surveillance

The SPEXER 2000 is a high-performance border surveillance radar for the automatic detection and classification of ground, sea and low-flying air targets. It was developed for the specific requirements of security scenarios; with its primary fields of application in border security systems, as well as the protection of critical infrastructure and perimeter.

The SPEXER 2000 has already proven its remarkable performance in integrated security systems in numerous regions of the world, where it is successfully being used to detect traditional as well as asymmetric threats.

The SPEXER 2000 is part of the SPEXER security radar family.

The radar combines the surveillance of ground, sea and low air space and is also capable of working under harsh climatic conditions, whereas other sensors such as cameras would fail. Therefore, the SPEXER 2000 is the perfect solution for the protection against contemporary threats. In the long range segment of security radars, the SPEXER 2000 is the unchallenged global leader with regard to technology features and benefits.

The SPEXER 2000 is the first operational land-based border surveillance radar worldwide, which is utilising AESA (Active Electronically Scanned Array) technology. Due to the use of active phased array technology, the operational performance is much higher when compared to

conventional reflector antenna radars. Based on the use of AESA technology, the SPEXER 2000 provides a dual beam capability which offers the functionalities of two separate conventional radars. The multi-tasking capability of the SPEXER 2000 overcomes the classical limitations of mechanical moving systems and enables the simultaneous use of target tracking and sector surveillance. Due to the non-mechanical movement during processing, the SPEXER 2000 produces better operational performance and results for the detection of slowly moving targets such as pedestrians.

The SPEXER 2000 can be deployed as land-based fixed installed system (e.g. on a mast) or transportable system (on a tripod), optionally in combination with an air-conditioned radome (protection against sand storms and extreme temperature) or with a camera system.

Functional Data																						
Type	Pulse-Doppler Radar based on AESA technology																					
Frequency	X-band																					
Instrumented range	40 km (24.9 mi; 21.6 NM), optionally 80 km (49.7 mi; 43.2 NM)																					
Detection ranges	<table border="0"> <tr> <td>Pedestrian (0.5 m<sup>2</sup> RCS):</td> <td>18 km</td> <td>(11.2 mi)</td> </tr> <tr> <td>Light vehicle (2.0 m<sup>2</sup> RCS):</td> <td>22 km</td> <td>(13.7 mi)</td> </tr> <tr> <td>Truck (10.0 m<sup>2</sup> RCS):</td> <td>36 km</td> <td>(22.4 mi)</td> </tr> <tr> <td>Light aircraft (3.0 m<sup>2</sup> RCS):</td> <td>27 km</td> <td>(16.8 mi)</td> </tr> <tr> <td>Low-level helicopter (5.0 m<sup>2</sup> RCS):</td> <td>36 km</td> <td>(22.4 mi)</td> </tr> <tr> <td>UAV (0.2 m<sup>2</sup> RCS):</td> <td>9 km</td> <td>(5.6 mi)</td> </tr> <tr> <td>Small boat, rubber dinghy (1.5 m<sup>2</sup> RCS):</td> <td>20 km</td> <td>(10.8 NM)</td> </tr> </table>	Pedestrian (0.5 m <sup>2</sup> RCS):	18 km	(11.2 mi)	Light vehicle (2.0 m <sup>2</sup> RCS):	22 km	(13.7 mi)	Truck (10.0 m <sup>2</sup> RCS):	36 km	(22.4 mi)	Light aircraft (3.0 m <sup>2</sup> RCS):	27 km	(16.8 mi)	Low-level helicopter (5.0 m <sup>2</sup> RCS):	36 km	(22.4 mi)	UAV (0.2 m <sup>2</sup> RCS):	9 km	(5.6 mi)	Small boat, rubber dinghy (1.5 m <sup>2</sup> RCS):	20 km	(10.8 NM)
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Coverage	Electronic scanning 120° in azimuth (opt. mechanical rotation 360°); 4.3° elevation beam width; opt. +/- 20° mechanical elevation tilt																					
Dimensions	Width: 1.0 m (39.4 in), Height: 0.7 m (27.6 in), Depth: 0.6 m (23.6 in)																					
Interface	Data/Control: 1 Gbit Ethernet LAN electrical (fibre optical interface optionally) for radar control and data output of plots, tracks and equipment status; integrated LAN interface for camera control																					

Main Characteristics	
<ul style="list-style-type: none"> <li>• Surveillance of large areas / long distances</li> <li>• Very early warning / high level of situational awareness</li> <li>• Detection, tracking and automatic classification of even very small and slowly moving targets such as pedestrians (due to high Doppler resolution)</li> <li>• Multi-tasking and dual beam capability: one compact all-in-one SPEXER 2000 can replace several conventional radars</li> <li>• Multi-mode capability: Time-multiplex and parallel operation (multi-sector scanning, point surveillance, target tracking)</li> <li>• Very high target location accuracy (in range and azimuth)</li> </ul>	<ul style="list-style-type: none"> <li>• Interface for easy integration into a C2 system</li> <li>• Ready for multi-radar operation also in combination with cameras (in network)</li> <li>• Very low average radiated power: 8 Watts</li> <li>• Graceful degradation capability (solid state T/R modules) and very high MTBF in particular due to electronic instead of mechanical scanning</li> <li>• Low lifecycle cost due to electronic scanning instead of a permanently rotating antenna</li> <li>• For extreme climatic conditions (e.g. desert), an optional radome is available</li> </ul>